

# REQUEST FOR PROPOSAL (RFP)

# Traffic Signal Maintenance

RFP Number:	11-0403		ontracting Officer:	Sandra Rogers		
Proposal Due Date:	March 23, 2011		e-Proposal onference Date:	Not applicable		
<b>Proposal Due Time:</b>	3:00 P.M.	RF	FP Issue Date:	February 17, 2011		
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SPECIFIC SOLICI	TATION DECLIED	DEMENTS ADE	AC NOTED DEL	OW:		
Proposal and/or Perform		Not applicable to		ZOW:		
Certificate of Competer		Section 1.16				
Indemnification/Insurance: Section 1.8						
Pre-Proposal Conference/Walk-Thru: Not applicable to this solicitation						
counter-signed by an authorized County representative, this document and any specifically identified attachments may form the contract document binding the parties to all performance specified herein.  Vendors shall complete and return the entirety of this RFP, and attach all other information requested in this RFP (see Provision 1.13). Failure to sign the proposal response, or to submit the proposal response by the specified time and date, may be cause for rejection of the proposal.						
proposar response b		NO-RESPONSE	· ·	tion of the prope	,5 <b>a</b> 1.	
If any vendor does <u>not</u> want to respond to this solicitation at this time, or, would like to be removed from Lake County's Vendor List, please mark the appropriate space, complete name below and return this page only.						
Not interested at this time; keep our firm on Lake County's Vendors List for future solicitations for this product / service						
Please remove our firm from Lake County's Vendor's List for this product / service.						
VENDOR IDENTIFICATION						
Company Name:			_ Phone Number:			
E-mail Address:			Contact Person:			

# **Section 1.1: Purpose**

The purpose of this request for proposal is to establish a contract with a vendor(s) to: one(1) provide on-call repairs and/or maintenance and, two (2) new construction and, three (3) rehabilitation relating to traffic control devices owned and/or maintained by the County. Current number of devices, but not limited to, are: eighty-two (82) school speed zone flashers, fifty-five (55) warning flashers, nineteen (19) beacons, one (1) navigation beacon, one hundred eighty-four (184) traffic signals, eight (8) street lights. **Exhibit A** has been provided for signal locations.

# **Section 1.2: Designated Procurement Representative**

Questions concerning any portion of this solicitation shall be directed in writing [fax and e-mail accepted] to the below named individual who shall be the official point of contact for this solicitation. To ensure reply, questions should be submitted no later than five (5) working days before the proposal due date.

Sandra Rogers, Contracting Officer Lake County BCC Procurement Services office 315 W. Main Street, Room 441 PO BOX 7800 Tayares, FL 32778-7800

Phone: 352.343.9832 Fax: 352.343.9473

E-mail: srogers@lakecountyfl.gov

No answers given in response to questions submitted shall be binding upon this solicitation unless released in writing as an addendum to the solicitation by the Lake County Procurement Services office.

## Section 1.3: Method of Award

Award will be made to the vendor who submits the overall proposal that is judged to provide the best value to the County. Proposals will be evaluated based upon the following criteria:

- 1. Quality of similar work that has been provided for other public and private entities.
- 2. Qualifications of proposed personnel.
- 3. Proposed costs / fee schedule.
- 4. Reports from direct and indirect references.
- 5. Responsiveness and completeness of the written proposal to these instructions with regard to the Scope of Services.
- 6. Other relevant criteria.

# **Section 1.4: Pre-Proposal Conference / Site Visits**

Not applicable to this solicitation.

# **Section 1.5: Term of Contract – Twenty-Four (24) Months**

This contract shall commence on the first calendar day of the month succeeding approval of the contract by the Board of County Commissioners, or designee, unless otherwise stipulated in the Notice of Award Letter distributed by the County's Office of Procurement Services; and is contingent upon the completion and submittal of all required pre-award documents. The initial contract term shall be twenty-four (24) months, and then the contract will remain in effect until completion of the expressed and/or implied warranty period. The contract prices resultant from this solicitation shall prevail for the full duration of the initial contract term unless otherwise indicated elsewhere in this document.

# Section 1.6: Option to Renew for Three (3) Additional One (1) Year Period(s)

Prior to, or upon completion, of the initial term of this contract, the County shall have the option to renew this contract for three (3) additional one (1) year period(s). Prior to completion of each exercised contract term, the County may consider an adjustment to price based on changes in the following pricing indexes: CPI. It is the vendor's responsibility to request any pricing adjustment in writing under this provision. The vendor's written request for adjustment should be submitted thirty (30) calendar days prior to expiration of the then current contract term. The vendor adjustment request must clearly substantiate the requested increase. The written request for adjustment should not be in excess of the relevant pricing index change. If no adjustment request is received from the vendor, the County will assume that the vendor has agreed that the optional term may be exercised without pricing adjustment. Any adjustment request received after the commencement of a new option period shall not be considered.

The County reserves the right to reject any written price adjustments submitted by the vendor and/or to not exercise any otherwise available option period based on such price adjustments. Continuation of the contract beyond the initial period, and any option subsequently exercised, is a County prerogative, and not a right of the vendor. This prerogative will be exercised only when such continuation is clearly in the best interest of the County.

# Section 1.7: Method of Payment - Periodic Invoices For Completed Purchases

The vendor(s) shall submit invoices to the County user department(s) after each individual purchase has been completed. In addition to the general invoice requirements set forth below, the invoices shall reference, as applicable, the corresponding delivery ticket number, packing slip number, or other acceptance document that was signed by an authorized representative of the County user department at the time the items were delivered and accepted. Submittal of these periodic invoices shall not exceed thirty (30) calendar days from the delivery of the goods or services. Under no circumstances shall the invoices be submitted to the County in advance of the delivery and acceptance of the items.

All invoices shall contain the contract and/or purchase order number, date and location of delivery or service, description of the goods and/or service provided, and confirmation of acceptance of the goods or services by the appropriate County representative. Failure to submit invoices in the prescribed manner will delay payment, and the vendor may be considered in default of contract and its contract may be terminated. Payments shall be tendered in accordance with the Florida Prompt Payment Act, Part VII, Chapter 218, Florida Statutes.

#### **Section 1.8: Insurance**

Each vendor shall include in its solicitation response package proof of insurance capabilities, including but not limited to, the following requirements: [This does not mean that the vendor must have the coverage prior to submittal, but, that the coverage must be in effect prior to a purchase order or contract being executed by the County.]

An original certificate of insurance, indicating that the awarded vendor has coverage in accordance with the requirements of this section, shall be furnished by the vendor to the Contracting Officer within five (5) working days of such request and must be received and accepted by the County prior to contract execution and/or before any work begins.

The vendor shall provide and maintain at all times during the term of any contract, without cost or expense to the County, policies of insurance, with a company or companies authorized to do business in the State of Florida, and which are acceptable to the County, insuring the vendor against any and all claims, demands or causes of action whatsoever, for injuries received or damage to property relating to the performance of duties, services and/or obligations of the vendor under the terms and provisions of the contract. The vendor is responsible for timely provision of certificate(s) of insurance to the County at the certificate holder address evidencing conformance with the contract requirements at all times throughout the term of the contract.

Such policies of insurance, and confirming certificates of insurance, shall insure the vendor is in accordance with the following minimum limits:

General Liability insurance on forms no more restrictive than the latest edition of the Occurrence Form Commercial General Liability policy (CG 00 01) of the Insurance Services Office or equivalent without restrictive endorsements, with the following minimum limits and coverage:

Each Occurrence/General Aggregate \$1,000,000/2,000,000
Products-Completed Operations \$2,000,000
Personal & Adv. Injury \$1,000,000
Fire Damage \$50,000
Medical Expense \$5,000
Contractual Liability Included

Automobile liability insurance, including owned, non-owned, and hired autos with the following minimum limits and coverage:

**Combined Single Limit** 

\$1,000,000

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Workers' compensation insurance based on proper reporting of classification codes and payroll amounts in accordance with Chapter 440, Florida Statutes, and/or any other applicable law requiring workers' compensation (Federal, maritime, etc). If not required by law to maintain workers compensation insurance, the vendor must provide a notarized statement that if he or she is injured; he or she will not hold the County responsible for any payment or compensation.

Employers Liability insurance with the following minimum limits and coverage:

Each Accident	\$1,000,000
Disease-Each Employee	\$1,000,000
Disease-Policy Limit	\$1,000,000

Professional liability and/or specialty insurance (medical malpractice, engineers, architect, consultant, environmental, pollution, errors and omissions, etc.) insurance as applicable, with minimum limits of \$1,000,000 and annual aggregate of \$2,000,000.

The following additional coverage must be provided if a dollar value is inserted below:

Loss of Use at coverage value: \$	
Garage Keepers Liability at coverage value:	\$

Lake County, a Political Subdivision of the State of Florida, and the Board of County Commissioners, shall be named as additional insured as their interest may appear on all applicable liability insurance policies.

The certificate(s) of insurance, shall provide for a minimum of thirty (30) days prior written notice to the County of any change, cancellation, or nonrenewal of the provided insurance. It is the vendor's specific responsibility to ensure that any such notice is provided within the stated timeframe to the certificate holder.

Certificate(s) of insurance shall identify the applicable solicitation (ITB/RFP/RFQ) number in the Description of Operations section of the Certificate.

Certificate holder shall be:

LAKE COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA, AND THE BOARD OF COUNTY COMMISSIONERS. P.O. BOX 7800
TAVARES, FL 32778-7800

Certificates of insurance shall evidence a waiver of subrogation in favor of the County, that coverage shall be primary and noncontributory, and that each evidenced policy includes a Cross

Liability or Severability of Interests provision, with no requirement of premium payment by the County.

The Vendor shall be responsible for subcontractors and their insurance. Subcontractors are to provide certificates of insurance to the prime vendor evidencing coverage and terms in accordance with the Vendor's requirements.

All self-insured retentions shall appear on the certificate(s) and shall be subject to approval by the County. At the option of the County, the insurer shall reduce or eliminate such self-insured retentions, or the vendor or subcontractor shall be required to procure a bond guaranteeing payment of losses and related claims expenses.

The County shall be exempt from, and in no way liable for, any sums of money, which may represent a deductible or self-insured retention in any insurance policy. The payment of such deductible or self-insured retention shall be the sole responsibility of the vendor and/or sub contractor providing such insurance.

Failure to obtain and maintain such insurance as set out above will be considered a breach of contract and may result in termination of the contract for default.

Neither approval by the County of any insurance supplied by the vendor or Subcontractor(s), nor a failure to disapprove that insurance, shall relieve the vendor or Subcontractor(s) of full responsibility for liability, damages, and accidents as set forth herein.

# **Section 1.9: Bonding Requirements**

Not applicable to this solicitation

# **Section 1.10: Completion/Delivery**

As specified in Statement of Work

# **Section 1.11: Acceptance of Goods or Services**

The product(s) delivered as a result of an award from this solicitation shall remain the property of the contractor, and services rendered under the contract will not be deemed complete, until a physical inspection and actual usage of the product(s) and/or service(s) is (are) accepted by the County and shall be in compliance with the terms herein, fully in accord with the specifications and of the highest quality.

Any goods and/or services purchased as a result of this solicitation and/or contract may be tested/inspected for compliance with specifications. In the event that any aspect of the goods or services provided is found to be defective or does not conform to the specifications, the County reserves the right to terminate the contract or initiate corrective action on the part of the vendor, to include return of any non-compliant goods to the vendor at the vendor's expense, requiring the

vendor to either provide a direct replacement for the item, or a full credit for the returned item. The vendor shall not assess any additional charge(s) for any conforming action taken by the County under this clause. The County will not be responsible to pay for any product or service that does not conform to the contract specifications.

In addition, any defective product or service or any product or service not delivered or performed by the date specified in the purchase order or contract, may be procured by the County on the open market, and any increase in cost may be charged against the awarded contractor. Any cost incurred by the County in any re-procurement plus any increased product or service cost shall be withheld from any monies owed to the contractor by the County for any contract or financial obligation.

# Section 1.11.1: Deficiencies in Work to be Corrected by the Vendor

The vendor shall promptly correct all apparent and latent deficiencies and/or defects in work, and/or any work that fails to conform to the contract documents regardless of project completion status. All corrections shall be made within ten (10) business days after such rejected defects, deficiencies, and/or non-conformances are verbally reported to the vendor by the County's project administrator, who may confirm all such verbal reports in writing. The vendor shall bear all costs of correcting such rejected work. If the vendor fails to correct the work within the period specified, the County may, at its discretion, notify the vendor, in writing, that the vendor is subject to contractual default provisions if the corrections are not completed to the satisfaction of the County within five (5) calendar days of receipt of the notice. If the vendor fails to correct the work within the period specified in the notice, the County shall place the vendor in default, obtain the services of another vendor to correct the deficiencies, and charge the incumbent vendor for these costs, either through a deduction from the final payment owed to the vendor or through invoicing. If the vendor fails to honor this invoice or credit memo, the County may terminate the contract for default.

# Section 1.12.1: Materials Shall be New and Warranted Against Defects

The vendor hereby acknowledges and agrees that all materials, except where recycled content is specifically requested, supplied by the vendor in conjunction with this solicitation and resultant contract shall be new, warranted for their merchantability, and fit for a particular purpose. In the event any of the materials supplied to the County by the vendor are found to be defective or do not conform to specifications: (1) the materials may be returned to the vendor at the vendor's expense and the contract cancelled or (2) the County may require the vendor to replace the materials at the vendor's expense.

# **Section 1.13: Delivery and Completion of Solicitation Response**

# **Section 1.13.1: Delivery of Solicitation Response**

Unless a package is delivered by the vendor in person, all incoming mail from the U.S. Postal Service and any package delivered by a third party delivery organization (FedEx, UPS, DHL, private courier, etc.) will be opened for security and contamination inspection by the Lake

County Clerk of the Circuit Court Mail Receiving Center in an off-site secure controlled facility prior to delivery to any Lake County Government facility, which includes the Lake County Office of Procurement Services.

To be considered for award, a bid or proposal must be received and accepted in the Procurement Services office prior to the date and time established within the solicitation. A response will <u>not</u> be considered for award if received in the Procurement Services office after the official due date and time regardless of when or how it was received by the Lake County Clerk of Court Mail Receiving Center. Allow sufficient time for transportation and inspection.

Each package shall be clearly marked with the applicable solicitation number, title, and company name. Ensure that your bid or proposal is securely sealed in an opaque envelope/package to provide confidentiality of the bid or proposal prior to the due date of the solicitation.

If you plan on submitting your bid or proposal **IN PERSON**, please bring it to:

LAKE COUNTY PROCUREMENT SERVICES 315 W. MAIN STREET 4TH FLOOR, ROOM 441 TAVARES, FLORIDA

If you submit your bid or proposal by the **UNITED STATES POSTAL SERVICE (USPS)**, please mail it to:

LAKE COUNTY PROCUREMENT SERVICES PO BOX 7800 TAVARES, FL 32778-7800

If you submit your bid or proposal by a **THIRD PARTY CARRIER** such as FedEx, UPS, or a private courier, please send it to:

LAKE COUNTY PROCUREMENT SERVICES MAIL RECEIVING CENTER 32400 COUNTY ROAD 473 LEESBURG, FL 34788

Facsimile (fax) or electronic submissions (e-mail) will <u>not</u> be accepted.

# Section 1.14: Completion Requirements for Request For Proposal (RFP) – Professional Services

The original proposal and four (4) complete copies of the proposal submitted by the vendor shall be sealed and delivered to the Procurement Services office no later than the official proposal due date and time. Any proposal received after this time will <u>not</u> be considered and will be returned unopened to the submitter. The County is not liable or responsible for

any costs incurred by any vendor in responding to this RFP including, without limitation, costs for product and/or service demonstrations if requested. When you submit your proposal, you are making a binding offer to the County.

Each proposal shall be prepared simply and economically, providing a straightforward, concise description of the proposer's capabilities to satisfy the conditions and requirements of this RFP. Fancy bindings, colored displays, and promotional material are not desired. Emphasis in each proposal must be on completeness and clarity of content. The County emphasizes that the proposer concentrate on accuracy, completeness, and clarity of content.

To facilitate analysis of its proposal, the proposer shall prepare its proposal in accordance with the instructions outlined in this section. If the proposal deviates from these instructions, such proposal may, in the County's sole discretion, be rejected.

<u>Page Size and Format:</u> Page size shall be 8.5 x 11 inches, not including foldouts. The text size shall be 11 point or larger.

# Section 1.14.1 Proposal Submittal

The following items shall be included and submitted with your proposal:

- Tab A. RFP Coversheet completed.
- Tab B. Statement of Interest to be submitted on the firm's letterhead and include the following:
  - 1. Concisely state the firm's understanding of the services required by the County.
  - 2. Include additional relevant information not requested elsewhere in the RFP.
  - 3. The signature on the statement shall be that of a person authorized to represent and bind the firm.
- Tab C. Firm Profile Form (Attachment 1). Attach proof of license to practice in Florida.
- Tab D. Outside Firm Form (Attachment 2). Complete one (1) form for each subcontractor arrangements that may be assigned to this project. Brief resumes may also be attached in addition to completing the form.
- Tab E. Resumes (Attachment 3). Complete one (1) form for each key person proposed to be assigned to this project. Brief resumes may also be attached in addition to completing the form.

- Tab F. Similar Projects Form (Attachment 4). Reference similar work efforts (at least five (5) verifiable) performed by your firm within the last five (5) years, to other public sector organizations in the State of Florida; County entities preferred. Examples should best illustrate current qualifications relevant to this project. (Make copies of this form as needed.)
- Tab G. Fee Schedule/Certifications/Signature Forms. Complete Section 4 Forms attached.
- Tab H. Proof of Insurance. Provide either a completed Accord form or a signed letter from your insurance agency on its letterhead stating that you have or can get the required insurance coverage.
- Tab I. Financial Stability. Each proposer shall certify and provide a statement that it is financially stable and have the necessary resources, human and financial, to provide the services at the level required by County. Each proposer shall be prepared to supply a financial statement upon request. If a subcontractor or joint venture arrangement is being proposed, provide similar information for those participants in the proposal. Provide clear and succinct information that will provide insight to the County about the financial qualifications, fitness and stability of the proposer.

# **Section 1.15: Business Hours of Operations**

No work shall be done on Saturday, Sunday, County holiday, or on any days between the hours of 5:01 P.M. and 7:59 A.M. except when such work is necessary for the proper care and protection of the work already performed, and when permission to do such work is secured from the County Department representative. No overtime work shall be started without prior approval of the immediate project manager or his/her designated representative.

County Holidays are as follows:
New Year's Day
Martin Luther King, Jr. Day
Presidents' Day
Memorial Day
Independence Day
Labor Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

# Section 1.16: Certificate of Competency/Licensure, Permits, and Fees

Any person, firm, corporation or joint venture that submits an offer in response to a County solicitation shall, at the time of such offer, hold a valid Certificate of Competency or appropriate current license issued by the State or County Examining Board qualifying said person, firm, corporation or joint venture to perform the work proposed. If work for other trades is required in conjunction with this solicitation and will be performed by a sub-contractor(s) or vendor(s) hired by the prime/responding vendor, an applicable Certificate of Competency/license issued to the sub-contractor(s)/hired vendor(s) shall be submitted with the prime/responding vendor's offer; provided, however, that the County may at its option and in its best interest allow the prime/responding vendor to supply the sub contractor(s)/hired vendor(s) certificate/license to the County during the offer evaluation period. The prime/responding vendor is responsible to ensure that all required licenses, permits, and fees (to include any inspection fees) required for this project are obtained and paid for, and shall comply with all laws, ordinances, regulations, and building or other code requirements applicable to the work contemplated herein. Damages, penalties, and/or fines imposed on the County or the vendor for failure to obtain required licenses, permits, or inspections shall be borne by the vendor.

# Section 1.17: Clean-Up

All unusable materials and debris shall be removed from the premises at the end of each workday, and disposed of in an appropriate manner. Upon final completion, the vendor shall thoroughly clean up all areas where work has been involved as mutually agreed with the associated user department's project manager.

# Section 1.18: Competency of Vendors and Associated Subcontractors

The County may elect to conduct a pre-award inspection of the vendor's facility during the offer evaluation process. Offers will be considered only from firms which are regularly engaged in the business of providing or distributing the goods and/or performing the services as described in the solicitation, and who can produce evidence that they have a consistent satisfactory record of performance. Vendors must demonstrate that they have sufficient financial support and organization to ensure that they can satisfactorily execute the contract if awarded under the terms and conditions herein stated. In the event that the vendor intends to sub-contract any part of its work to another vendor, or will obtain the goods specifically offered under this contract from another source of supply; the vendor may be required to verify the competency of its sub-contractor or supplier. The County reserves the right, before awarding the contract, to require a vendor to submit such evidence of its qualifications and the qualifications of its sub-contractor as it may deem necessary. The County may consider any evidence available to it of the financial, technical and other qualifications and abilities of any vendor responding hereunder, including past performance with the County, in determining vendor responsibility for the purposes of selecting a vendor for contract award.

# **Section 1.19: Compliance with Federal Standards**

All items to be purchased under this contract shall be in accordance with all governmental standards, to include, but not be limited to, those issued by the Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety Hazards (NIOSH), the National Fire Protection Association (NFPA) and the National Electrical Manufacturers Association (NEMA).

# **Section 1.20: Hourly Rate**

The hourly rate quoted shall be deemed to provide full compensation to the vendor for labor, equipment use, travel time, and any other element of cost or price. This rate is assumed to be at straight-time for all labor, except as otherwise noted. The vendor shall comply with minimum wage standards, and/or any other wage standards specifically set forth in this solicitation and resultant contract, and any other applicable laws of the State of Florida. If overtime is allowable under this contract, it will be covered under a separate item in the special clauses.

# Section 1.21: Labor, Materials, and Equipment Shall be Supplied by the Vendor

Unless otherwise stated in this solicitation the vendor shall furnish all labor, material and equipment necessary for satisfactory contract performance. When not specifically identified in the technical specifications, such materials and equipment shall be of a suitable type and grade for the purpose. All material, workmanship, and equipment shall be subject to the inspection and approval of the County's Project Manager.

# **Section 1.22 Liquidated Damages**

The County and the Contractor recognize that, since time is of the essence for services as part of this Contract, the County could suffer financial loss if the work is not completed within the time specified.

The County shall be entitled to assess, as liquidated damages, but not as a penalty, for each calendar day after the scheduled completion date. The project shall be deemed to be completed on the date the work is deemed complete to the satisfaction of the County Department Representative. The Contractor hereby expressly waives and relinquishes any right which it may have to seek to characterize the above-noted liquidated damages as a penalty. The parties agree that the liquidated damages sum represents a fair and reasonable estimate of the County's actual damages at the time of contracting if the Contractor fails to complete the work in a timely manner. The liquidated damages shall be as follows:

**Original Contract Amount** 

Original Contract / Infoam	Daily Charges per Calendar Day
\$5,000 and under	\$25
Over \$5,000 but less than \$10,000	\$75
\$ 10,000 or more but less than \$20,000	
\$20,000 or more but less than \$30,000	\$250
\$30,000 or more but less than \$40,000	\$350
\$40,000 or more but less than \$50,000	\$450
Over \$50,000 but less than \$250,000	\$544
\$250,000 or more but less than \$500,000	\$634
\$500,000 or more but less than \$2,500,000	\$1,288
\$2,500,000 or more but less than \$5,000,000	\$2,470
\$5,000,000 or more but less than \$10,000,000	\$3,730
\$10,000,000 or more but less than \$15,000,000	\$5,240
\$15,000,000 or more but less than \$20,000,000	\$6,078
\$20,000,000 and over	\$8,624 plus
	0.00027 percent per day for amount over \$20,000,000

Any Contractor that is in default for not completing the work within the time specified will be removed from the bidder's list, at the option of the County, and not permitted to bid work for Lake County until the project is complete and the liquidated damages sum is satisfied.

The County shall retain from the compensation to be paid to Contractor the above described sum.

# **Section 1.23: Omission from the Specifications**

The apparent silence of this specification and any addendum regarding any details, or the omission from the specification of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail, and that only materials and workmanship of first quality are to be used. All interpretations of this specification shall be made upon the basis of this agreement.

# **Section 1.24: Protection of Property**

All existing structures, utilities, services, roads, trees, shrubbery, and property in which the County has an interest shall be protected against damage or interrupted services at all times by the vendor during the term of this contract; and the vendor shall be held responsible for repairing or replacing property to the satisfaction of the County which is damaged by reason of the vendor's operation on the property. In the event the vendor fails to comply with these requirements, the County reserves the right to secure the required services and charge the costs of such services back to the vendor.

# Section 1.25: Public Records/ Copyrights

All electronic files, audio and/or video recordings, and all papers pertaining to any activity performed by the contractor for or on behalf of the County shall be the property of the County and will be turned over to the County upon request. In accordance with Chapter 119, Florida Statutes, each file and all papers pertaining to any activities performed for or on behalf of the County are public records available for inspection by any person even if the file or paper resides in the contractor's office or facility. The vendor shall maintain the files and papers for not less than three (3) complete calendar years after the project has been completed or terminated, or in accordance with any grant requirements, whichever is longer. Prior to the close out of the contract, the contractor shall appoint a records custodian to handle any records request and provide the custodian's name and telephone number(s) to the Contracting Officer.

Any copyright derived from any agreement derived from this solicitation shall belong to the author. The author and the contractor shall expressly assign to the County nonexclusive, royalty free rights to use any and all information provided by the contractor in any deliverable and/or report for the County's use which may include publishing in County documents and distribution as the County deems to be in the County's best interests. If anything included in any deliverable limits the rights of the County to use the information, the deliverable shall be considered defective and not acceptable and the contractor will not be eligible for any compensation.

# Section 1.26: Purchase of Other Items Not Listed Within this Solicitation Based on Price Quotes

While the County has listed all major items within this solicitation which are utilized by County departments in conjunction with their operations, there may be similar or ancillary items that must be purchased by the County during the term of this contract. Under these circumstances, a County representative will contact the primary vendor to obtain a price quote for the similar or ancillary items. If there are multiple vendors on the contract, the County representative may also obtain price quotes from these vendors. The County reserves the right to award these ancillary items to the primary contract vendor, another contract vendor based on the lowest price quoted, or to acquire the items through a separate solicitation.

#### Section 1.27: Risk of Loss

The vendor assumes the risk of loss of damage to the County's property during possession of such property by the vendor, and until delivery to, and acceptance of, that property to the County. The vendor shall immediately repair, replace or make good on the loss or damage without cost to the County, whether the loss or damage results from acts or omissions (negligent or not) of the vendor or a third party.

The vendor shall indemnify and hold the County harmless from any and all claims, liability, losses and causes of action which may arise out of the fulfillment of this contract. The vendor shall pay all claims and losses of any nature whatsoever in connection therewith, and shall defend all suits, in the name of the County when applicable, and shall pay all costs and judgments which may issue thereon.

## Section 1.28: Work Order Time Limits and Time Extensions

The Contractor shall have Ninety (90) days to COMPLETE the work from the date the signed "Lake County Notice to Proceed Form" signed by County staff, with the purchase order number affixed, was received. COMPLETE shall mean that the New Construction, Rehabilitation, Repair, or Modification to the traffic device have passed the required flash and turn on inspection with all punch list items repaired to the County's satisfaction.

Unless otherwise provided, contract time shall mean the number of consecutive calendar days from the commencement date noted in the Notice to Proceed to the date on which all work is to be completed. The Contractor shall diligently pursue the completion of the work and coordinate the work being done on the project by its subcontractors and material suppliers, as well as coordinate its work with the work of other contractors so that its work or the work of others shall not be delayed or impaired by any act or omission of any act by Contractor. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, as well as coordination of all portions of the work under the Contract Documents.

Should the Contractor be obstructed or delayed in the prosecution of or completion of the work as a result of unforeseeable causes beyond the control of the Contractor, and not due to its fault or neglect, including but not restricted to acts of God or the public enemy, acts of government, fires, floods, discovery of pre-existing hazardous materials, utility conflicts, epidemics, quarantine regulations, strikes or lockouts, the Contractor shall notify the Traffic Operations Supervisor or designee in writing within two (2) regular work days after the commencement of such delay, stating the cause or causes thereof, or be deemed to have waived any right which the Contractor may have had to request a time extension.

NO CLAIM FOR DAMAGES OR ANY CLAIM OTHER THAN FOR AN EXTENSION OF TIME SHALL BE MADE OR ASSERTED AGAINST THE COUNTY BY REASON OF ANY DELAYS. No interruption, interference, inefficiency, suspension or delay in the commencement or progress of the work shall relieve the Contractor of its duty to perform or give rise to any right to damages or additional compensation from the County. The Contractor expressly acknowledges and agrees that the Contractor shall receive no damages for delay. However, this provision shall not preclude recovery or damages by the Contractor for hindrances or delays due solely to fraud, bad faith or active interference on the part of the County. Otherwise, Contractor shall be entitled to extensions of the Contract Time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above. This provision applies to claims for early completion as well as late completion. Such extensions of time will not be granted for delays caused by unfavorable weather, ground conditions related to the weather, inadequate construction force or for the failure of the Contractor to timely order equipment or materials.

If the Contractor complies with the two (2) regular work days notice requirement, the Traffic Operations Supervisor or designee shall ascertain the facts and the extent of the delay being claimed. The Traffic Operations Supervisor or designee's findings of fact justify such an extension, and the Traffic Operations Supervisor or designee's finding of fact shall be final and conclusive on the parties. The Contractor shall cooperate with the Traffic Operations Supervisor

or designee's investigation of the delays by providing any schedules, correspondence or other data that may be required to complete the findings of fact. Extensions to the contract time may be granted for only those delays that impact the Contractor's Work Schedule. Extensions of contract time must be authorized by Change Order approved in accordance with County policy.

#### **GENERAL SPECIFICATIONS**

## A. **DEFINITIONS:**

- 1. Maintenance: action required to continue operation or to provide minor modifications to existing traffic signals or street lighting. Maintenance includes planned and emergency actions.
- 2. New Construction: Any new traffic signalization or street lighting installation.
- 3. Rehabilitation: Any major upgrade or replacement of existing traffic signalization or street lighting equipment

## B. MATERIALS/INSTALLATION

All material and installation shall be in accordance with the following technical specifications and/or the latest applicable standards set by the Florida Department of Transportation and the Federal Highway Administration Approved Product List (APL), National Electrical Manufactures Association (NEMA) and current (NEC) National Electric Code. Specifications/Standards can be found on <a href="www.dot.state.fl.us">www.dot.state.fl.us</a> for the FDOT and <a href="www.fhwa.dot.gov">www.fhwa.dot.gov</a> for the Federal Highway Administration.

- 1. Florida Department of Transportation:
  - a. <u>Standard Specification for Road & Bridge Construction</u>, 2010, and subsequent updates.
  - b. <u>Design Standards</u>, 2010, and subsequent updates.
  - c. <u>Manual on Uniform Minimum Standards for Design, Construction and Maintenance of Streets and Highways</u>, 2010, and subsequent updates.
- 2. Federal Highway Administration: <u>Manual of Uniform Traffic Control Devices</u>, 2009 Edition, and subsequent updates.

In the event of conflicting specifications, the resolution shall be at the discretion of the County.

The contractor(s) shall maintain records and accounts, including property, personnel and financial records, as are deemed necessary by the County and its auditors to insure proper accounting for all funds expended. The records shall be made available, upon request for Lake County and its auditors for a period of three years from the date of final payment.

The contractor(s) shall at all times conduct its work to insure the least possible obstructions to normal pedestrian and vehicular traffic including access to all public and private properties to insure the protection of persons and property per the Florida Department of Transportation standards and any other applicable references. The contractor shall be responsible for all permits, right of way, and utility locates.

The contractor(s) shall be responsible for coordinating with all public and private utility companies, as may be needed for the safe and proper completion of the work.

The contractor(s) shall maintain equipment and materials necessary to properly maintain the County's traffic control devices. The County reserves the right to inspect the aforementioned at any time during the contract period and subsequent renewal options with respect to contract compliance. The awarded contractor(s) shall be responsible to ensure equipment and materials are available on the job sites. No compensation will be paid for time lost due to lack of the proper equipment and/or materials to perform routine maintenance. The County reserves the right to supply new and/or reconditioned parts to the awarded contractor(s) at the County's discretion.

The contractor(s) shall provide qualified personnel to meet the Counties need for emergency repairs, scheduled maintenance, construction and/or rehabilitation. The contractor shall designate a signal supervisor to coordinate work with the County staff. This person shall be IMSA (International Municipal Signal Association) Certified Level II Electronic Traffic Signal Technician and ATTSA certified work site supervisor. An IMSA Level II Electronics signal technician must be continuously available to respond or assist within two (2) to four (4) hours, as directed by the County.

The contractor(s) shall purchase and maintain each maintenance technician a form of communication from any point within Lake County. A toll free cellular telephone for primary communication for the site supervisor is mandatory.

The contractor(s) shall not commence work until County staff assigns a Purchase Order number. In cases of emergency after hour requests for maintenance, a verbal authorization will be given by County staff, with a follow-up Purchase Order number. The contractor(s) will contact the County dispatch center upon arrival of a maintenance call, and upon completion of the work. The contractor(s) maintenance supervisor shall verbally notify the County staff during normal working hours of the status of each work order. The contractor(s) will be required to fill out entries in the intersection logbook for work performed at each intersection. Failure to follow this procedure will result in non-payment of the invoice. The contractor(s) shall notify County staff if a problem is noticed which is repetitive in nature. The invoices for authorized work shall be submitted to Lake County Traffic Operations. Invoices will not be paid without the proper supporting documentation, including the work order authorization number and final inspection of the work performed.

The contractor shall not make modifications to traffic signal timing without the written authorization of the County Department representative or his/her designee.

The contractor shall respond to emergency maintenance request within (2) two hours of receiving notification. The contractor shall perform and complete new construction or rehabilitative construction within ninety (90) days of notification.

## C. SIGNALIZATION AND HIGHWAY LIGHTING

- 1. The contractor shall notify the County at least two weeks before the start of signal construction work. After notification, County Department representative will schedule a pre-construction conference. The contractor shall provide a construction schedule.
- 2. Modification to signal construction plans may only be made with the written approval of the head of County Department representative or his/her designated representative.
- 3. The contractor shall submit three sets of shop drawings, three sets of manufacturer's descriptive literature and technical data for each item proposed and three sets of diagrams showing the cable runs, conductors and conduit for each intersection to be fabricated.
- 4. Signals in previously un-signalized intersections shall be placed in flashing operation at least seven days before being placed into full operation. No signal will be placed in flashing mode or full operation mode on Monday, Friday, or Holidays. A minimum 90 day burn in period (warranty) for full operation that covers replacement of all parts shall be required before final acceptance. This 90 day period is not intended to delay final payments for the project. Final payment can be expected when all work is completed including all "punch list items" and proper invoices have been received per the procedures outlined in this contract.
- 5. The following shall be furnished by the contractor:
  - a. Controller Assemblies shall be Naztec Regional Lake County TS2 Type 1 Equipment with Ethernet.
  - b. Traffic signal service disconnect (breaker box) Square D.
- 6 The contractor shall determine the exact location of utilities. The contractor shall notify the appropriate utility before construction. The contractor is responsible for the protection of all utilities within the construction area.
- 7. County Department representative reserves the right to make field adjustments at its discretion.
- 8. Equipment shall be installed and fabricated so as not to obstruct pedestrian facilities.
- 9. USGS benchmarks, which may be disturbed, shall be protected or, if it is not possible to protect them, the contractor shall notify:

Geodetic Information Center Mark Maintenance Center ATTN: N/cg - 162 6001 Executive Boulevard Rockville, MO 20852 (301) 443-8319

- 10. Existing survey markers, which may be disturbed by construction, shall be protected and if disturbed shall be reset by a land surveyor registered in the State of Florida at the contractor's expense.
- 11. Equipment shall have DOT approval numbers permanently affixed to it.
- 12. Ground rods shall not be installed in concrete pole bases.
- 13. Signal cable shall be attached to messenger wire with appropriate size lashing rod.
- 14. Delay detectors shall operate in the normal mode during corresponding green phase and in the delay mode during all other phases.
- 15. All hardware, including cabinets, shall be attached with lead anchors and bolts. Drive pins, J bolts and studs, are not permitted.
- 16. Concrete strain poles shall be installed per current Florida Department of Transportation specifications.
- 17. Traffic signals shall be 12-inch aluminum, with tunnel visors and LED indications, unless otherwise specified
- 18. Pedestrian signal assemblies shall be aluminum. Mounting arms shall be aluminum. Pedestrian assemblies shall have 1/4 inch diameter drainage holes drilled in the bottom. Pedestrian signal displays shall be count down type with international symbols with full Hand/Person LED's. All hardware shall be fastened with lead anchors and bolts.
- 19. A school zone flasher assembly includes a 4 1/2-inch diameter (County code), ¼ inch wall, length of aluminum pole to FDOT specifications for proper installation, 1-12 inch amber LED head assembly, with slip fitter, a flashing beacon controller cabinet with Naztec clock, or a 2 inch square pole mounted self contained type similar to the Carmanah brand and an overhead electrical service, or solar powered assembly as specified by County personnel. Type to be determined by the County on a per job basis. School speed signs shall be supplied by the County.
- 20. A 24 hour operation solar warning flasher assembly shall include (2) two (55) fifty-five watt solar panels (2) two 100 AH solar batteries, a (4 ½) four and one-half inch diameter (1/4) one-quarter inch wall aluminum pole with a length to meet FDOT specifications for proper installation, or a 2 inch square pole mounted self contained type similar to the Carmanah brand with Aluminum signal head with tunnel visor and LED indication. Type to be determined by the County on a per job basis. Signs will be supplied by the County.

- 21. Signal heads shall be wired directly to the terminal block without using Cinch "Jones" plugs. Drop hangers shall be tri-stud, serrated and adjustable. Disconnects shall be 18-inch circuit terminal block so that each wire of a signal cable can be terminated under a compression type screw.
- 22. Loop wire and installation shall meet Florida Department of Transportation specifications. Loop wires entering the controller cabinet shall be a shielded lead-in cable. Twisted pairs are not permitted to enter the cabinet.
- 23. The contractor shall be responsible for installing the correct number of turns for the loop size and placement for the proper detection of vehicles.
- 24. Loop assemblies shall be laid out by the contractor and verified by the County. The location and dimensions of the plans are approximate. The County may adjust Loop locations and lengths.
- 25. Pedestrian signal detector assemblies shall meet ADA specifications. Pedestrian push button shall have a 1/8 inch diameter drainage hole drilled in the bottom, and to include all proper signs.
- 26. Controller cabinet bases shall accommodate a Naztec Type 5 cabinet. The contractor will frame and pour the concrete base and bolt the cabinet to the concrete base. This procedure includes a concrete technician's pad poured in the front of the cabinet.
- 27. The County has the right to equipment that is removed from the site. The contractor shall deliver equipment, claimed by the County, to Lake County Traffic Operations. The contractor shall dispose of any equipment not claimed by the County.
- 28. A contact paste shall be applied in accordance with manufacturer's recommendations on all connections inside the service disconnect.
- 29. For the purpose of removal of traffic signal heads, the number of signal heads to be removed shall be determined by counting the signal disconnects.

#### D. MESSENGER WIRE ASSEMBLY

This item is intended for support for communications cabling and shall be (1/4) one-quarter inch diameter, EHS. All required pole hardware and materials needed for the messenger installation shall be included in this pay item. Messenger wire shall be bonded to existing ground verticals on all joint use Power Company downed poles.

# E. OPTICOM VEHICLE DETECTORS

1. The contractor, when installing this item shall install a complete 3M OPTICOM emergency preemption system. Lake County will specify the model at the time of project.

#### F. VIDEO VEHICLE DETECTION

- 1. This item shall consist of a vehicle detection system for processing of video and provide detector inputs to the signal controller. The system shall have cameras to cover all approaches requiring detection. Each camera shall have motorized zoom lens focal length range from 3.7 to 75mm. Unit systems shall have the ability to be setup without the need for a laptop computer. This system shall include a monitor. The camera and lens assembly shall be housed in a light colored environmental NEMA-4 enclosure with a sun shield. The enclosure shall be watertight, and dust proof. The connection between the cameras and the video interface panel shall be coaxial cable suitable for outdoor installation. System shall include all necessary camera mounting hardware and other related materials.
- 2. This system will be used for presence/pulse detection. Vehicular counting and other related functions are not required. The system provided under this item shall be completely compatible with all Lake County existing traffic control equipment.

# G. CAMERA ASSEMBLY

Dome Camera with Pan Tilt Zoom control, IP addressable. Shall be on the Florida Department of Transportation Approved Product List. Submit for County approval per project.

# H. FIBER OPTIC CONDUIT:

FOR TECHNICAL SPECIAL PROVISIONS FOR SYSTEM COMMUNICATIONS (FIBER OPTIC CABLE) see **EXHIBIT B.** 

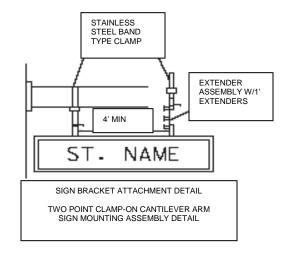
# LAKE COUNTY INTERNALLY ILLUMINATED STREET NAME SIGN SPECIFICATIONS AND REQUIREMENTS

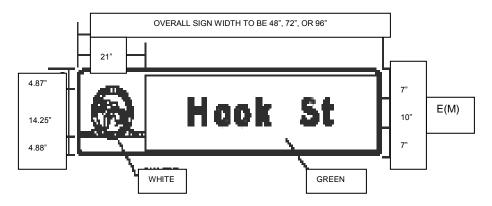
The internally illuminated sign specifications shall be in accordance with the latest edition of the "Florida Department of Transportation Standards Specifications for Road and Bridge Construction" section 699 and any other applicable and the following Lake County Internally Illuminated Street Name Sign Specifications and Requirements.

# LAKE COUNTY REQUIREMENTS

- 1: Internally illuminated street name sign shall be illuminated by LED.
  - 1.1: The internally illuminated street name sign shall be from the Florida Department of Transportation Approved Products List.
- 2: The internally illuminated street name sign shall be the 22 inch/24 inch style container, 22 inch viewable sign face height, 24 inch container height or 16 inch/18 inch style container, 16 inch viewable sign face height, 18 inch container height. Size to be determined by the County per the job.
- 3: The internally illuminated street name sign shall be installed on a separate breaker.
- 4: The sign bracket and clamp-on cantilever arm should be installed below the messenger cable, level with the red indication.
- 5. A photocell shall be installed near the electric service within reach of a lift truck. Care to be given to install where street lighting does not affect operation.
- 6: Internally illuminated street name sign facing specifications
- 6.1: The backing shall be 1/8 inch clear lexan.
- **6.2**: The sheeting shall be white diamond grade VIP sheeting, 3-M series 3990 or comparable.
- 6.3: The facing shall be covered with green acrylic electric cuttable film, 3-M series 1177C or comparable.
- 6.4: The desired letter size shall be 10 inch upper case and 6 inch lower case type E modified, should a subject street name using this size and series not fit on the desired panel, one of the following alternatives should be used (listed in decreasing order of desirability.)
- A. 10 inch upper case, series D
- B. 10 inch upper case, series C
- C. 8 inch upper case, series D
- D. 8 inch upper case, series C

- 6.5: If abbreviations are necessary use the following; Bv Boulevard, Av Avenue, Rd Road, Tr Terrace, Tl Trail, Pl Place, Dr Drive, Ln Lane, Wy Way, Cr Circle, Ct Court. No punctuation is required.
- 6.6: Overall sign width shall be 48 inch, 72 inch, or 96 inch.
- 6.7: A 21 inch wide area on the left side of the sign facing shall be white to accommodate the Lake County logo.
- 6.8: The Lake County logo shall be supplied by Lake County and installed by the contractor installing the signs.
- 6.9: The contractor shall be responsible for field verifying the message with local maintaining agency before fabrication the signs. Shop drawings shall be required.
- 6.10: Sign facing detail see below.





#### 3.1 DEFINITIONS

Addenda: A written change to a solicitation.

Contract: The agreement to perform the services set forth in this document signed by both parties with any addenda and other attachments specifically incorporated.

**Contractor:** The vendor to whom award has been made.

County: Shall refer to Lake County, Florida. Modification: A written change to a contract.

Proposal: Shall refer to any offer(s) submitted in response to a Request for Proposal.

**Proposer:** Shall refer to anyone submitting an offer in response to a Request for Proposal.

Request for Proposal (RFP): Shall mean this solicitation documentation, including any and all addenda. An RFP involves evaluation of proposals, and award may be made on a best value basis with price, technical, and other factors considered.

Solicitation: The written document requesting either bids or proposals from the marketplace.

Vendor: a general reference to any entity responding to this solicitation or performing under any resulting contract.

The County has established for purposes of this Request for Proposal (RFP) that the words "shall", "must", or "will" indicate an essential requirement or condition which may not be waived.

#### 3.2 INSTRUCTIONS TO PROPOSERS

#### A. Proposer Qualification

It is the policy of the County to encourage full and open competition among all available qualified vendors. All vendors regularly engaged in the type of work specified in the solicitation are encouraged to submit proposals. Vendors may enroll with the County to be included on a mailing list for selected categories of goods and services. To be recommended for award the County requires that vendors provide evidence of compliance with the requirements below upon request:

- Disclosure of Employment
- Disclosure of Ownership. 2.
- Drug-Free Workplace.
- W-9 and 8109 Forms The vendor must furnish these forms as required by the Internal Revenue Service.
- Social Security Number The vendor must provide a copy of the primary owner's social security card if the social security number is being used in lieu of the Federal Identification Number (F.E.I.N.)
- Americans with Disabilities Act (A.D.A.)
- Conflict of Interest
- Debarment Disclosure Affidavit. 8.
- Nondiscrimination
- 10. Family Leave
- Antitrust Laws By acceptance of any contract, the vendor agrees to comply with all applicable antitrust laws.

#### **B.** Public Entity Crimes

Pursuant to Section 287.133(2)(a) of the Florida Statutes, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017 of the Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

#### C. Request for Additional Information

Any communication or inquiries, except for clarification of process or procedure already contained in the solicitation, are to be made in writing to the attention of the procurement representative identified in the solicitation no later than five (5) working days prior to the proposal due date. Such inquiries or request for information shall be submitted to the procurement representative in writing and shall contain the requester's name, address, and telephone number. The

Procurement Services office may issue an addendum in response to any inquiry received, which changes or clarifies the terms, provisions, or requirements of the solicitation. The proposer should not rely on any representation, statement or explanation whether written or verbal, other than those made in this solicitation document or in any addenda issued. Where there appears to be a conflict between this solicitation and any addenda, the last addendum issued shall prevail. It is the proposer's responsibility to ensure receipt of all addenda and any accompanying documentation. Failure to acknowledge each addendum may prevent the proposal from being considered for award.

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#### D. Contents of Solicitation and Proposers' Responsibilities

It is the responsibility of the proposer to become thoroughly familiar with the requirements, terms, and conditions of this solicitation. Pleas of ignorance of these matters by the proposer of conditions that exist or may exist will not be accepted as a basis for varying the requirements of the County, or the compensation to be paid to the proposer.

#### E. Restricted Discussions

From the date of issuance of this solicitation until final County action, vendors should not discuss the solicitation or any part thereof with any employee, agent, or any other representative of the County except as expressly authorized by the designated procurement representative. The only communications that shall be considered pertinent to this solicitation are appropriately signed written documents from the vendor to the designated procurement representative and any relevant written document promulgated by the designated procurement representative.

# F. Change or Withdrawal of Proposals

1. Changes to Proposal- Prior to the scheduled due date, a proposer may change its proposal by submitting a new proposal specified in the solicitation with a letter on the firm's letterhead, signed by an authorized agent stating that the new submittal replaces the original submittal. The new submittal shall contain the letter and all information as required for submitting the original proposal.

2. Withdrawal of Proposal - A proposal shall be irrevocable unless the proposal is withdrawn as provided herein. A proposal may be withdrawn, either physically or by written notice, at any time prior to the proposal due date. If withdrawn by written notice, that notice must be addressed to, and received by, the designated procurement representative prior to the designated receipt date and time. A proposal may also be withdrawn after expiration of the designated acceptance period, and prior to award, by submitting a letter to the designated procurement representative. The letter must be on company letterhead and signed by an authorized agent of the proposer.

#### G. Conflicts within the Solicitation

Where there appears to be a conflict between the General Terms and Conditions, Special Conditions, the Technical Specifications, the Pricing Section, or any addendum issued, the order of precedence shall be: the last addendum issued, the Proposal Price Section, the Technical Specifications, the Special Conditions, and then the General Terms and Conditions. It is incumbent upon the vendor to identify such conflicts to the designated procurement representative prior to the proposal due date.

#### H. Prompt Payment Terms

It is the policy of the County that payment for all purchases by County agencies shall be made in a timely manner and that interest payments will be made on late payments in accordance with Part VII, Chapter 218, Florida Statutes, known as the Florida Prompt Payment Act. The proposer may offer cash discounts for prompt payments; however, such discounts will not be considered in determining the lowest price during proposal evaluation. Proposers are requested to provide prompt payment terms in the space provided on the signature page of the solicitation.

#### 3.3 PREPARATION OF PROPOSALS

The Pricing Section of this solicitation defines requirements of items to be purchased, and must be completed and submitted with the proposal. Use of any other form or alteration of the form may result in rejection of the proposal

- B. The proposal submitted must be legible. Bidders shall use typewriter, computer or ink. All changes must be crossed out and initialed in ink. Failure to comply with these requirements may cause the bid to be rejected.
- C. An authorized agent of the proposers firm must sign the proposal. <u>FAILURE TO SIGN THE PROPOSAL MAY</u> <u>BE CAUSE TO REJECT THE PROPOSAL.</u>
- D. The proposer may submit alternate proposal(s) for the same solicitation provided that such offer is allowable under the terms and conditions. The alternate proposal must meet or exceed the minimum requirements and be submitted as a separate proposal marked "Alternate Proposal".
- E. When there is a discrepancy between the unit prices and any extended prices, the unit prices will prevail.
- F. Any proposal received after the designated receipt date through no fault or error of the County will be considered late, and, except under the most exceptional circumstances, may not be considered for award

#### 3.4 COLLUSION

Where two (2) or more related parties, as defined herein, each submit a proposal for the same contract, such proposals shall be presumed to be collusive. Related parties shall mean proposer or the principals thereof which have a direct or indirect ownership interest in another proposer for the same contract or in which a parent company or the principals thereof of one proposer have a direct or indirect ownership interest in another proposer for the same contract. Furthermore, any prior understanding, agreement, or connection between two (2) or more corporations, firms, or persons submitting a proposal for the same materials, supplies, services, or equipment shall also be presumed to be collusive. Proposals found to be collusive shall be rejected. Proposers which have been found to have engaged in collusion may be considered non-responsible, and may be suspended or debarred. Any contract resulting from collusive bidding may be terminated for default.

# 3.5 PROHIBITION AGAINST CONTINGENT FEES

The vendor warrants that they have not employed or retained any company or person, other than a bona fide employee working solely for the vendor to solicit or secure the contract and that they have not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the vendor, any consideration contingent upon or resulting from the award or making of the contract.

## 3.6 CONTRACTING WITH COUNTY EMPLOYEES

Any County employee or member of his or her immediate family seeking to contract with the County shall seek a conflict of interest opinion from the County Attorney prior to submittal of a response to contract with the County. The affected employee shall disclose the employee's assigned function within the County and interest or the interest of his or her immediate family in the proposed contract and the nature of the intended contract.

#### 3.7 INCURRED EXPENSES

This RFP does not commit the County to make an award nor shall the County be responsible for any cost or expense which may be incurred by any proposer in preparing and submitting a proposal, or any cost or expense incurred by any proposer prior to the execution of a purchase order or contract agreement. By submitting a proposal, the proposer also agrees that the County bears no responsibility for any costs associated with the preparation of the proposal and/or any administrative or judicial proceedings resulting from this solicitation process.

#### 3.8 COUNTY IS TAX-EXEMPT

The County is generally exempt from Federal Excise Taxes and all State of Florida sales and use taxes. Do not include any tax on any item or service. The County will sign an exemption certificate if submitted by the contractor. Contractors doing business with the County are <u>not</u> exempt from paying sales tax to their suppliers for

materials to fulfill contractual obligations with the County, nor shall any contractor be authorized to use any of the County's Tax Exemptions in securing such materials.

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## 3.9 PROPRIETARY/CONFIDENTIAL INFORMATION

Proposers are hereby notified that all information submitted as part of, or in support of proposal submittal will be available for public inspection after the proposal due date in compliance with Chapter 119 of the Florida Statutes (the "Public Record Act"). The proposer should not submit any information in response to this RFP which the proposer considers proprietary or confidential. The submission of any information to the County in connection with this solicitation shall be deemed conclusively to be a waiver from release of the submitted information unless such information is exempt or confidential under the Public Records Act.

#### 3.10 CANCELLATION OF SOLICITATION

The County reserves the right to cancel, in whole or in part, any solicitation when doing so reflects the best interest of the County.

## 3.11 AWARD

- A. The contract resulting from this solicitation may be awarded to the responsible proposer which submits a proposal determined to provide the best value to the County with price, technical, and other applicable factors considered. The County reserves the right to reject any and all proposals, to waive irregularities or technicalities and to re-advertise for all or any part of this solicitation as deemed in its best interest. The County shall be the sole judge of its best interest.
- B. When there are multiple line items in a solicitation, the County reserves the right to award on an individual item basis, any combination of items, total low bid or in whichever manner deemed in the best interest of the County. This provision specifically supersedes any method of award criteria stated in the solicitation when such action is clearly necessary to protect the best interests of the County.
- C. The County reserves the right to reject any and all proposals if it is determined that prices are excessive or determined to be unreasonable, or it is otherwise determined to be in the County's best interest to do so.
- D. Award of this solicitation will only be made to firms that satisfy all necessary legal requirements to do business with the County. The County may conduct a pre-award inspection of the proposer's site or hold a pre-award qualification hearing to determine if the proposer is capable of performing the requirements of this solicitation.
- E. The proposer's performance as a prime contractor or subcontractor on previous County contracts shall be taken into account in evaluating the responsibility of a proposer that submitted a proposal under this solicitation.
- **F.** Any tie situations will be resolved in consonance with current written procedure in that regard.
- G. Award of the contract resulting from this solicitation may be predicated on compliance with and submittal of all required documents as stipulated in the solicitation.
- H. A vendor wishing to protest any award decision resulting from this solicitation shall do so as set forth in the County's Purchasing Procedure Manual. It is incumbent upon the vendor to be aware of the posting of any associated award recommendation. Any protest received after the contract award date may be rejected.

#### 3.12 GENERAL CONTRACT CONDITIONS

The contract shall be binding upon and shall inure to the benefit of each of the parties and of their respective successors and permitted assigns. The contract may not be amended, released, discharged, rescinded or abandoned, except by a written instrument duly executed by each of the parties hereto. The failure of any party hereto at any time to enforce any of the provisions of the contract will in no way constitute or be construed as a waiver of such provision or of any other provision hereof, nor in any way affect

the validity of, or the right thereafter to enforce, each and every provision of the contract. Any dispute arising during the course of contract performance that is not readily rectified by coordination between the vendor and the County user department shall be referred to Procurement Services office for resolution.

#### 3.13 OTHER AGENCIES

With the consent of the vendor, other agencies may make purchases in accordance with the contract. Such purchases shall be governed by the same terms and conditions as stated herein with the exception of the change in agency name.

#### 3.14 CONTRACT EXTENSION

The County has the unilateral option to extend a contract for up to ninety (90) calendar days beyond the current contract period. In such event, the County will notify the vendor(s) in writing of such extensions. The contract may be extended beyond the initial ninety (90) day extension upon mutual agreement between the County and the vendor(s). Exercise of the above options requires the prior approval of the Director of Procurement Services.

#### 3.15 WARRANTY

All warranties express and implied, shall be made available to the County for goods and services covered by this solicitation. All goods furnished shall be fully guaranteed by the vendor against factory defects and workmanship. At no expense to the County, the vendor shall correct any and all apparent and latent defects that may occur within the manufacturer's standard warranty period. The special conditions of the solicitation may supersede the manufacturer's standard warranty.

#### 3.16 ESTIMATED QUANTITIES

Estimated quantities or dollars are for vendor's guidance only. No guarantee is expressed or implied as to quantities or dollar value that will be used during the contract period. The County is not obligated to place any order for a given amount subsequent to the award of this solicitation. The County may use estimated quantities in the award evaluation process. Estimated quantities do not contemplate or include possible additional quantities that may be ordered by other entities that may utilize this contract. In no event shall the County be liable for payments in excess of the amount due for quantities of goods or services actually ordered.

#### 3.17 NON-EXCLUSIVITY

It is the intent of the County to enter into an agreement that will satisfy its needs as described within this solicitation. However, the County reserves the right to perform, or cause to be performed, all or any of the work and services herein described in the manner deemed to represent its best interests. In no case will the County be liable for billings in excess of the quantity of goods or services actually provided under this contract.

#### 3.18 CONTINUATION OF WORK

Any work that commences prior to, and will extend, beyond the expiration date of the current contract period shall, unless terminated by mutual written agreement between the County and the vendor, continue until completion without change to the then current prices, terms and conditions.

#### 3.19 LAWS, RULES, REGULATIONS AND LICENSES

The vendor shall comply with all federal, state, and local laws and regulations applicable to provision of the goods and/or services specified in this solicitation. During the term of the contract the vendor assures that it is in compliance with Title VII of the 1964 Civil Rights Act, as amended, and the Florida Civil Rights Act of 1992, in that the vendor does not on the grounds of race, color, national origin, religion, sex, age, disability or marital status, discrimination in any form or manner against the end/or employees or applicants for employment. The vendor understands that any contract is conditioned upon the veracity of this statement.

#### 3.20 SUBCONTRACTING

Unless otherwise stipulated herein, the vendor shall not subcontract any portion of the work without the prior written consent of the County. Subcontracting without the prior consent of the County may result in termination of the contract for default.

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#### 3.21 ASSIGNMENT

The vendor shall not assign or transfer any contract resulting from this solicitation, including any rights, title or interest therein, or its power to execute such contract to any person, company or corporation without the prior written consent of the County.

#### 3.22 RESPONSIBILITY AS EMPLOYER

The employee(s) of the vendor shall be considered at all times its employee(s), and not an employee(s) or agent(s) of the County, The contractor shall provide employee(s) capable of performing the work as required. The County may require the contractor to remove any employee it deems unacceptable. All employees of the contractor may be required to wear appropriate identification.

#### 3.23 INDEMNIFICATION

To the extent permitted by law, the vendor shall indemnify and hold harmless the County and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorney's fees and costs of defense, which the County or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of the agreement by the vendor or its employees, agents, servants, partners, principals or subcontractors. The vendor shall pay all claims and losses in connection therewith, and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the County, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may be incurred thereon. The vendor expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by the vendor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County or its officers, employees, agents and instrumentalities as herein provided.

#### 3.24 MODIFICATION OF CONTRACT

Any contract resulting from this solicitation may be modified by mutual consent of duly authorized parties, in writing through the issuance of a modification to the contract and/or purchase order as appropriate. This presumes the modification itself is in compliance with all applicable County procedures.

#### 3.25 TERMINATION FOR CONVENIENCE

The County, at its sole discretion, reserves the right to terminate this contract upon thirty (30) days written notice. Upon receipt of such notice, the vendor shall not incur any additional costs under this contract. The County shall be liable only for reasonable costs incurred by the vendor prior to notice of termination. The County shall be the sole judge of "reasonable costs."

# 3.26 TERMINATION DUE TO UNAVAILABILITY OF CONTINUING FUNDING

When funds are not appropriated or otherwise made available to support continuation of performance in a current or subsequent fiscal year, the contract shall be cancelled and the vendor shall be reimbursed for the reasonable value of any non-recurring costs incurred amortized in the price of the supplies or services/tasks delivered under the contract.

# 3.27 TERMINATION FOR DEFAULT

The County reserves the right to terminate this contract, in part or in whole, or affect other appropriate remedy in the event the vendor fails to perform in accordance with the terms and conditions stated herein. The County further reserves the right to suspend or debar the vendor in accordance with the County ordinances, resolutions and/or administrative orders. The vendor

will be notified by letter of the County's intent to terminate. In the event of termination for default, the County may procure the required goods and/or services from any source and use any method deemed in its best interest. All re-procurement cost shall be borne by the vendor.

## 3.28 FRAUD AND MISREPRESENTATION

Any individual, corporation or other entity that attempts to meet its contractual obligations with the County through fraud, misrepresentation or material misstatement, may be debarred for up to five (5) years. The County as a further sanction may terminate or cancel any other contracts with such individual, corporation or entity with such vendor held responsible for all direct or indirect costs associated with termination or cancellation, including attorney's fees.

#### 3.29 RIGHT TO AUDIT

The COUNTY reserves the right to require CONTRACTOR to submit to an audit by any auditor of the COUNTY's choosing. CONTRACTOR shall provide access to all of its records which relate directly or indirectly to this Agreement at its place of business during regular business hours. CONTRACTOR shall retain all records pertaining to this Agreement and upon request make them available to the COUNTY for three (3) years following expiration of the Agreement. CONTRACTOR agrees to provide such assistance as may be necessary to facilitate the review or audit by the COUNTY to ensure compliance with applicable accounting and financial standards. Additionally, CONTRACTOR agrees to include the requirements of this provision in all contracts with subcontractors and material suppliers in connection with the work performed hereunder. If an audit inspection or examination pursuant to this section discloses overpricing or overcharges of any nature by the CONTRACTOR to the COUNTY in excess of one percent (1%) of the total contract billings, in addition to making adjustments for the overcharges, the reasonable actual cost of the COUNTY's audit shall be reimbursed to the COUNTY by the CONTRACTOR. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the CONTRACTOR's invoices and/or records shall be made within a reasonable amount of time, but in no event shall the time exceed ninety (90) days, from presentation of the COUNTY's audit findings to the CONTRACTOR.

#### 3.30 PUBLIC RECORDS

All electronic files, audio and/or video recordings, and all papers pertaining to any activity performed by the vendor for or on behalf of the County shall be the property of the County and will be turned over to the County upon request. In accordance with Chapter 119, Florida Statutes, each file and all papers pertaining to any activities performed for or on behalf of the County are public records available for inspection by any person even if the file or paper resides in the vendor's office or facility. The vendor shall maintain the files and papers for not less than three (3) complete calendar years after the project has been completed or terminated, or in accordance with any grant requirements, whichever is longer. Prior to the close out of the Contract, the vendor shall appoint a records custodian to handle any records request and provide the custodian's name and telephone number(s) to the County.

#### 3.31 GOVERNING LAWS

The interpretation, effect, and validity of any contract(s) resulting from this solicitation shall be governed by the laws and regulations of the State of Florida, and Lake County, Florida. Venue of any court action shall be in Lake County, Florida. In the event that a suit is brought for the enforcement of any term of the contract, or any right arising there from, the parties expressly waive their respective rights to have such action tried by jury trial and hereby consent to the use of non-jury trial for the adjudication of such suit.

#### 3.32 STATE REGISTRATION REQUIREMENTS

Any corporation submitting a bid in response to this RFP shall

either be registered or have applied for registration with the Florida Department of State in accordance with the provisions of Chapter 607, Florida Statutes. A copy of the registration/ application may be required prior to award of a contract. Any partnership submitting a bid in response to this RFP shall have complied with the applicable provisions of Chapter 620, Florida Statutes. For additional information on these requirements, please contact the Florida Secretary of State's Office, Division of Corporations, 800.755.5111 (http://www.dos.state.fl.us).

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#### 3.33 PRIME CONTRACTOR

The vendor awarded the contract shall act as the prime contractor and shall assume full responsibility for the successful performance under the contract. The vendor shall be considered the sole point of contact with regard to meeting all requirements of the contract. All subcontractors will be subject to advance review by the County in regards to competency and security concerns. After the award of the contract no change in subcontractors will be made without the consent of the County. The vendor shall be responsible for all insurance, permits, licenses, and related matters for any and all subcontractors. Even if the subcontractor is self-insured, the County may require the contractor to provide any insurance certificates required by the work to be performed.

#### 3.34 FORCE MAJEURE

The parties will exercise every reasonable effort to meet their respective obligations hereunder, but shall not be liable for delays resulting from force majeure or other causes beyond their reasonable control, including, but not limited to, compliance with revisions to Government law or regulation, acts of nature, acts or omissions of the other party, fires, strikes, national disasters, wars, riots, transportation problems and/or any other cause whatsoever beyond the reasonable control of the parties. Any such cause may be cause for appropriate extension of the performance period.

# 3.35 NO CLAIM FOR DAMAGES

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County because of any delays. No interruption, interference, inefficiency, suspension, or delay in the commencement or progress of the Work shall relieve the vendor of duty to perform, or give rise to any right to damages or additional compensation from the County. The vendor's sole remedy shall be the right to seek an extension to the contract time. However, this provision shall not preclude recovery of damages by the vendor for hindrances or delays due solely to fraud, bad faith, or active interference on the part of the County.

#### 3.36 TRUTH IN NEGOTIATION CERTIFICATE

For all lump-sum or cost-plus fixed fee agreements exceeding \$150,000, the awarded firm may be required to execute a truth in negotiation certificate stating that the wage rates and other factual unit costs are accurate, complete and current, at the time of contracting.

#### 3.37 GRANT FUNDING

In the event any part of the contract is to be funded by federal, state, or other local agency monies, the vendor hereby agrees to comply with all requirements of the funding entity applicable to the use of the monies, including full application of requirements involving the use of minority firms, women's business enterprises, and labor surplus area firms. Vendors are advised that payments under the contract may be withheld pending completion and submission of all required forms and documents required of the vendor pursuant to the grant funding requirements. A copy of the requirements shall be supplied to the vendor by the County upon request.

# **RFP TITLE: Traffic Signal Maintenance**

#### NOTES:

- Lake County is exempt from all taxes (Federal, State, Local). Pricing should be less all taxes. A Tax Exemption Certificate will be furnished upon request.
- The vendor shall not alter or amend any of the information (including, but not limited to stated units of measure, item description, or quantity) stated in the Pricing Section. If any quantities are stated in the pricing section as being "estimated" quantities, vendors are advised to review the "Estimated Quantities" clause contained in Section 3 of this solicitation.
- Each price offered in your RFP shall be a firm-fixed price, exclusive of any tax. Any bid containing a modifying or "escalator" clause not specifically allowed for under the solicitation will <u>not</u> be considered.
- All pricing shall be FOB Destination unless otherwise specified in this solicitation document.
- All pricing submitted shall remain valid for a 90 day period. By signing and submitting a response to this solicitation, the vendor has specifically agreed to this condition.
- Vendors are advised to visit our website at <a href="http://www.lakecountyfl.gov">http://www.lakecountyfl.gov</a> and register as a potential vendor. Vendors that have registered on-line receive an e-mail notice when the County issues a solicitation matching the commodity codes selected by a vendor during the registration process.

## ACKNOWLEDGEMENT OF ADDENDA

**INSTRUCTIONS:** Complete Part I or Part II, whichever applies

Part I:				
The bidder must list below the dates of issue for each addendum received in connection with this RFP:				
Addendum #1, Dated: _ Addendum #2, Dated: _ Addendum #3, Dated: _ Addendum #4, Dated:				
Part II:				
☐ No Addendum was received in connection	n with this RFP.			

# FEE SCHEDULE GROUP 1 SCHEDULE OF UNIT PRICES

page 1 Item #	Pay Item #	Description	Oper.	Units	Unit Price
1	101-1	Mobilization – 5% of the total amount for each work order with a minimum of \$250.00. (See page 3, item #4)			
2	Lake	MOT above FDOTT Design Standards (See page 3, item #4)	F/I	P/I	
3	102-111	Adjust Existing Signal, Head, Maint. Of Traffic	F/I	AS	
4	400-2-15	Miscellaneous Concrete	F/I	CY	
5	522-1	Concrete Sidewalk, 4"	F/I	SY	
6	522-2	Concrete Sidewalk, 6"	F/I	SY	
7	575-1-1	Sodding, Bahia	F/I	SY	
8	580-327-1	Relocation of Plants and Trees	RL	EA	
9	580-332-2	Tree Removal and Trimming, per 25"	C/R	EA	
10	604-3	Timing Implementation	1	PI	
11	620-1-1	Grounding Electrodes	F/I	LF	
12	630-1-11	Conduit, Above Ground	F/I	LF	
13	630-1-12	Conduit Underground	F/I	LF	
14	630-1-13	Conduit, Under Pavement	F/I	LF	
15	630-1-14	Conduit, Jacked	F/I	LF	
16	630-1-15	Conduit, Bridge Mounted	F/I	LF	
17	632-6-1	Signal Cable	F/I	LF	
18	632-7-1	Signal Cable	F/I	PI	
19	632-8-211	Fig. 8 Cable-Cl. Loop-6 Pair Min.	F/I	LF	
20	632-8-212	Interconnect Cable-6 Pair	F/I	LF	
21	634-4-112-150	Span Wire Assy. 150'-199'	F/I	LF	
22	634-4-112-200	Span Wire Assy 200'-249'	F/I	PI	
23	634-4-112-250	Span Wire Assy. 250'-299'	F/I	PI	
24	634-4-112-300	Span Wire Assy. 300'-349'	F/I	PI	
25	634-4-112-350	Span Wire Assy. 350'-399'	F/I	PI	
26	634-4-112-400	Span Wire Assy. 400'-449'	F/I	PI	
27	634-4-112-50	Span Wire Assy. 50'-149'	F/I	PI	
28	634-4-112-500	Span Wire Assy. 449' +	F/I	PI	
29	634-4-113-300	Box Span 300'-349'	F/I	PI	
30	634-4-113-350	Box Span 350'-399'	F/I	PI	

# SECTION 4 – FEE SCHEDULE/ CERTIFICATIONS/ SIGNATURES RFP Number: 11-0403

	page 2					Unit
32 634-4-113-450 Box Span 450'-499' F/I PI 33 634-4-113-500 Box Span 500' + F/I PI 34 634-5-1 Fiberglass Insulator F/I LF 35 634-6-1-14 Messenger Wire '¼" F/I LF 36 635-1-11 Pull & Junction Box F/I EA 37 635-1-12 Aerial Junction Box F/I EA 38 635-1-14 Pullbox-Non-Traffic Bearing F/I EA 39 635-1-15 Fiber Optic Junction Box F/I EA 40 639-1-11 Electrical Power Service F/I EA 41 639-1-12 Electrical Power Service, overhead F/I AS 42 639-1-22 Elect. Power Service, underground. F/I AS 43 639-2-1 Electrical Service Wire F/I LF 44 641-1 Strain pole guying (concrete) F/I EA 45 641-11 Concrete Strain Pole, Type II Service Pole F/I EA 46 641-12 Concrete Strain Pole Type III F/I EA 47 641-13-31 31' Class IV Conc. Pole F/I EA 48 641-14-40 40' Class V Concrete Pole F/I EA 50 641-14-41 41' Class V Concrete Pole F/I EA 51 641-14-42 42' Class V Concrete Pole F/I EA 52 641-14-44 44' Class V Concrete Pole F/I EA 53 641-15-40 40' Class V Concrete Pole F/I EA 54 641-15-41 41' Class VI Concrete Pole F/I EA 55 641-15-42 42' Class VI Concrete Pole F/I EA 56 641-15-41 41' Class VI Concrete Pole F/I EA 57 641-15-41 41' Class VI Concrete Pole F/I EA 58 641-15-41 41' Class VI Concrete Pole F/I EA 59 641-15-42 42' Class VI Concrete Pole F/I EA	Item #	Pay Item #	Description	Oper.	Units	Price
33       634-4-113-500       Box Span 500' +       F/I       PI         34       634-5-1       Fiberglass Insulator       F/I       LF         35       634-6-1-14       Messenger Wire '¼"       F/I       LF         36       635-1-11       Pull & Junction Box       F/I       EA         37       635-1-12       Aerial Junction Box       F/I       EA         38       635-1-14       Pullbox-Non-Traffic Bearing       F/I       EA         40       639-1-15       Fiber Optic Junction Box       F/I       EA         40       639-1-11       Electrical Power Service       F/I       EA         41       639-1-12       Electrical Power Service, overhead       F/I       AS         42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain Pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Po	31	634-4-113-400	Box Span 400'-449'	F/I	PI	
34         634-5-1         Fiberglass Insulator         F/I         LF           35         634-6-1-14         Messenger Wire '¼"         F/I         LF           36         635-1-11         Pull & Junction Box         F/I         EA           37         635-1-12         Aerial Junction Box         F/I         EA           38         635-1-14         Pullbox-Non-Traffic Bearing         F/I         EA           39         635-1-15         Fiber Optic Junction Box         F/I         EA           40         639-1-11         Electrical Power Service         F/I         EA           41         639-1-12         Electrical Power Service, overhead         F/I         AS           42         639-1-22         Elect. Power Service, underground.         F/I         AS           43         639-2-1         Electrical Service Wire         F/I         LF           44         641-1         Strain pole guying (concrete)         F/I         EA           45         641-11         Concrete Strain Pole, Type II Service Pole         F/I         EA           46         641-12         Concrete Strain Pole Type III         F/I         EA           47         641-13-31         31' Class IV Conc. Pole	32	634-4-113-450	Box Span 450'-499'	F/I	PI	
35         634-6-1-14         Messenger Wire '¼"         F/I         LF           36         635-1-11         Pull & Junction Box         F/I         EA           37         635-1-12         Aerial Junction Box         F/I         EA           38         635-1-14         Pullbox-Non-Traffic Bearing         F/I         EA           39         635-1-15         Fiber Optic Junction Box         F/I         EA           40         639-1-11         Electrical Power Service         F/I         EA           41         639-1-12         Electrical Power Service, overhead         F/I         AS           42         639-1-22         Elect. Power Service, underground.         F/I         AS           43         639-2-1         Electrical Service Wire         F/I         LF           44         641-1         Strain pole guying (concrete)         F/I         EA           45         641-11         Concrete Strain Pole, Type II Service Pole         F/I         EA           46         641-12         Concrete Strain Pole Type IIII         F/I         EA           47         641-13-31         31' Class IV Conc. Pole         F/I         EA           48         641-14-38         38' Class V Concrete Po	33	634-4-113-500	Box Span 500' +	F/I	PI	
36         635-1-11         Pull & Junction Box         F/I         EA           37         635-1-12         Aerial Junction Box         F/I         EA           38         635-1-14         Pullbox-Non-Traffic Bearing         F/I         EA           39         635-1-15         Fiber Optic Junction Box         F/I         EA           40         639-1-11         Electrical Power Service         F/I         EA           41         639-1-12         Electrical Power Service, overhead         F/I         AS           42         639-1-22         Elect. Power Service, underground.         F/I         AS           43         639-2-1         Electrical Service Wire         F/I         LF           44         641-1         Strain pole guying (concrete)         F/I         EA           45         641-11         Concrete Strain Pole, Type II Service Pole         F/I         EA           46         641-12         Concrete Strain Pole Type III         F/I         EA           47         641-3-3-31         31' Class IV Conc. Pole         F/I         EA           48         641-14-38         38' Class V Concrete Pole         F/I         EA           49         641-14-40         40' Class V Concr	34	634-5-1	Fiberglass Insulator	F/I	LF	
37       635-1-12       Aerial Junction Box       F/I       EA         38       635-1-14       Pullbox-Non-Traffic Bearing       F/I       EA         39       635-1-15       Fiber Optic Junction Box       F/I       EA         40       639-1-11       Electrical Power Service       F/I       EA         41       639-1-12       Electrical Power Service, overhead       F/I       AS         42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       <	35	634-6-1-14	Messenger Wire 1/4"	F/I	LF	
38       635-1-14       Pullbox-Non-Traffic Bearing       F/I       EA         39       635-1-15       Fiber Optic Junction Box       F/I       EA         40       639-1-11       Electrical Power Service       F/I       EA         41       639-1-12       Electrical Power Service, overhead       F/I       AS         42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-13-31       31' Class V Concrete Pole       F/I       EA         49       641-14-43       38' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44	36	635-1-11	Pull & Junction Box	F/I	EA	
39       635-1-15       Fiber Optic Junction Box       F/I       EA         40       639-1-11       Electrical Power Service       F/I       EA         41       639-1-12       Electrical Power Service, overhead       F/I       AS         42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class VI Concrete Pole       F/I       EA         53       641-15-40	37	635-1-12	Aerial Junction Box	F/I	EA	
40 639-1-11 Electrical Power Service F/I EA 41 639-1-12 Electrical Power Service, overhead F/I AS 42 639-1-22 Elect. Power Service, underground. F/I AS 43 639-2-1 Electrical Service Wire F/I LF 44 641-1 Strain pole guying (concrete) F/I EA 45 641-11 Concrete Strain Pole, Type II Service Pole F/I EA 46 641-12 Concrete Strain Pole Type III F/I EA 47 641-13-31 31' Class IV Conc. Pole F/I EA 48 641-14-38 38' Class V Concrete Pole F/I EA 49 641-14-40 40' Class V Concrete Pole F/I EA 50 641-14-41 41' Class V Concrete Pole F/I EA 51 641-14-42 42' Class V Concrete Pole F/I EA 52 641-14-44 44' Class V Concrete Pole F/I EA 53 641-15-40 40' Class VI Concrete Pole F/I EA 54 641-15-41 41' Class VI Concrete Pole F/I EA 55 641-15-42 42' Class VI Concrete Pole F/I EA	38	635-1-14	Pullbox-Non-Traffic Bearing	F/I	EA	
41       639-1-12       Electrical Power Service, overhead       F/I       AS         42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-3-31       31' Class IV Conc. Pole       F/I       EA         48       641-13-31       31' Class IV Concrete Pole       F/I       EA         49       641-14-38       38' Class V Concrete Pole       F/I       EA         50       641-14-40       40' Class V Concrete Pole       F/I       EA         51       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41 </td <td>39</td> <td>635-1-15</td> <td>Fiber Optic Junction Box</td> <td>F/I</td> <td>EA</td> <td></td>	39	635-1-15	Fiber Optic Junction Box	F/I	EA	
42       639-1-22       Elect. Power Service, underground.       F/I       AS         43       639-2-1       Electrical Service Wire       F/I       LF         44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-13-31       38' Class V Concrete Pole       F/I       EA         49       641-14-38       38' Class V Concrete Pole       F/I       EA         50       641-14-40       40' Class V Concrete Pole       F/I       EA         51       641-14-41       41' Class V Concrete Pole       F/I       EA         52       641-14-42       42' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	40	639-1-11	Electrical Power Service	F/I	EA	
43 639-2-1 Electrical Service Wire F/I LF  44 641-1 Strain pole guying (concrete) F/I EA  45 641-11 Concrete Strain Pole, Type II Service Pole F/I EA  46 641-12 Concrete Strain Pole Type III F/I EA  47 641-13-31 31' Class IV Conc. Pole F/I EA  48 641-14-38 38' Class V Concrete Pole F/I EA  49 641-14-40 40' Class V Concrete Pole F/I EA  50 641-14-41 41' Class V Concrete Pole F/I EA  51 641-14-42 42' Class V Concrete Pole F/I EA  52 641-14-44 44' Class V Concrete Pole F/I EA  53 641-15-40 40' Class VI Concrete Pole F/I EA  54 641-15-41 41' Class VI Concrete Pole F/I EA  55 641-15-42 42' Class VI Concrete Pole F/I EA	41	639-1-12	Electrical Power Service, overhead	F/I	AS	
44       641-1       Strain pole guying (concrete)       F/I       EA         45       641-11       Concrete Strain Pole, Type II Service Pole       F/I       EA         46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	42	639-1-22	Elect. Power Service, underground.	F/I	AS	
45 641-11 Concrete Strain Pole, Type II Service Pole F/I EA 46 641-12 Concrete Strain Pole Type III F/I EA 47 641-13-31 31' Class IV Conc. Pole F/I EA 48 641-14-38 38' Class V Concrete Pole F/I EA 49 641-14-40 40' Class V Concrete Pole F/I EA 50 641-14-41 41' Class V Concrete Pole F/I EA 51 641-14-42 42' Class V Concrete Pole F/I EA 52 641-14-44 44' Class V Concrete Pole F/I EA 53 641-15-40 40' Class VI Concrete Pole F/I EA 54 641-15-41 41' Class VI Concrete Pole F/I EA 55 641-15-42 42' Class VI Concrete Pole F/I EA	43	639-2-1	Electrical Service Wire	F/I	LF	
46       641-12       Concrete Strain Pole Type III       F/I       EA         47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	44	641-1	Strain pole guying (concrete)	F/I	EA	
47       641-13-31       31' Class IV Conc. Pole       F/I       EA         48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	45	641-11	Concrete Strain Pole, Type II Service Pole	F/I	EA	
48       641-14-38       38' Class V Concrete Pole       F/I       EA         49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	46	641-12	Concrete Strain Pole Type III	F/I	EA	
49       641-14-40       40' Class V Concrete Pole       F/I       EA         50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	47	641-13-31	31' Class IV Conc. Pole	F/I	EA	
50       641-14-41       41' Class V Concrete Pole       F/I       EA         51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	48	641-14-38	38' Class V Concrete Pole	F/I	EA	
51       641-14-42       42' Class V Concrete Pole       F/I       EA         52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	49	641-14-40	40' Class V Concrete Pole	F/I	EA	
52       641-14-44       44' Class V Concrete Pole       F/I       EA         53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	50	641-14-41	41' Class V Concrete Pole	F/I	EA	
53       641-15-40       40' Class VI Concrete Pole       F/I       EA         54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	51	641-14-42	42' Class V Concrete Pole	F/I	EA	
54       641-15-41       41' Class VI Concrete Pole       F/I       EA         55       641-15-42       42' Class VI Concrete Pole       F/I       EA	52	641-14-44	44' Class V Concrete Pole	F/I	EA	
55 641-15-42 42' Class VI Concrete Pole F/I EA	53	641-15-40	40' Class VI Concrete Pole	F/I	EA	
	54	641-15-41	41' Class VI Concrete Pole	F/I	EA	
56 641-15-43 43' Class VI Concrete Pole F/I EA	55	641-15-42	42' Class VI Concrete Pole	F/I	EA	
	56	641-15-43	43' Class VI Concrete Pole	F/I	EA	
57 641-15-44 44' Class VI Concrete Pole F/I EA	57	641-15-44	44' Class VI Concrete Pole	F/I	EA	- <u></u>
58 641-15-45 45' Class VI Concrete Pole F/I EA	58	641-15-45	45' Class VI Concrete Pole	F/I	EA	
59 641-15-46 46' Class VI Concrete Pole F/I EA	59	641-15-46	46' Class VI Concrete Pole	F/I	EA	
60 641-15-47 47' Class VI Concrete Pole F/I EA	60	641-15-47	47' Class VI Concrete Pole	F/I	EA	

page 3					Unit
Item #	Pay Item #	Description	Oper.	Units	Price
61	641-15-48	48' Class VI Concrete Pole	F/I	EA	
62	641-15-49	49' Class VI Concrete Pole	F/I	EA	
63	641-16-44	44' Class VII Concrete Pole	F/I	EA	
64	641-16-46	46' Class VII Concrete Pole	F/I	EA	
65	641-16-48	48' Class VII Concrete Pole	F/I	EA	
66	641-16-50	50' Class VII Concrete Pole	F/I	EA	
67	641-16-55	55' Class VII Concrete Pole	F/I	EA	
68	647-11-26	Mast Arm Comb. Std Single	F/I	EA	
69	647-11-32	Mast Arm Comb. Std Single	F/I	EA	
70	647-11-40	Mast Arm Comb. Std Single	F/I	EA	
71	647-11-45	Mast Arm Comb. Std Single	F/I	EA	
72	647-11-50	Mast Arm Comb. Std Single	F/I	EA	
73	647-11-55	Mast Arm Comb. Std Single	F/I	EA	
74	647-11-60	Mast Arm Comb. Std Single	F/I	EA	
75	647-13-100	Mast Arm Comb. Std Double	F/I	EA	
76	647-13-45	Mast Arm Comb. Std Double	F/I	EA	
77	647-13-60	Mast Arm Comb. Std Double	F/I	EA	
78	647-13-70	Mast Arm Comb. Std Double	F/I	EA	
79	647-13-80	Mast Arm Comb. Std Double	F/I	EA	
80	647-15-6	Add for Luminaire Attachment Mathcadd Design for Mast-arms per	F/I	EA	
81	647-A	assembly	F/I	EA	
82	647-B	Foundation Design for Mast-arms	F/I	EA	
83	647-C	Geotech. Testing for Mast-arm Foundations	F/I	PI	
84	648-11-60	Mast Arm Comb. Std Single	F/I	PI	
85	648-15-35	Mast Arm steel single arm w/luminaire	F/I	AS	
86	648-15-45	Mast Arm steel single arm w/luminaire	F/I	AS	
87	648-15-50	Mast Arm steel single arm w/luminaire	F/I	AS	
88	648-15-55	Mast Arm steel single arm w/luminaire	F/I	AS	
89	648-15-60	Mast Arm steel single arm w/luminaire	F/I	EA	
90	648-15-65	Mast Arm steel single arm w/luminaire	F/I	EA	

New #   Pay Item #   Description   Description   Price	page 4					Unit
92 648-15-75 Mast Arm steel single arm w/luminaire	Item #	Pay Item #	Description	Oper.	Units	Price
93 648-15-80 Mast Arm steel single arm w/luminaire F/I EA 94 648-17-100 Mast Arm steel double (55' + 45') arm w/luminaire F/I AS 95 648-17-105 Mast Arm steel double (60' = 45") arm w/luminaire F/I AS 96 648-17-110 Mast Arm steel double (60' = 50') arm w/luminaire F/I AS 97 648-17-75 Mast Arm steel double (45' = 30') arm w/luminaire F/I AS 98 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/I AS 99 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/I AS 99 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/I AS 99 648-10 F/I LF 100 648-11	91	648-15-70	Mast Arm steel single arm w/luminaire	F/I	AS	
94 648-17-100 Mast Arm steel double (55' + 45') arm w/luminaire F/l AS 95 648-17-105 Mast Arm steel double (60' = 45') arm w/luminaire F/l AS 96 648-17-110 Mast Arm steel double (60' = 50') arm w/luminaire F/l AS 97 648-17-75 Mast Arm steel double (45' = 30') arm w/luminaire F/l AS 98 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/l AS 99 648-1A Has a degree on the fit of depth fit of depth fit of depth AB' concr. Foundation for concr. Strain poles per Has a depth for concr. Foundation for mast arms, per ft. of depth fill depth f	92	648-15-75	Mast Arm steel single arm w/luminaire	F/I	EA	
95 648-17-105 Mast Arm steel double (60° = 45°) arm w/luminaire F/I AS 96 648-17-110 Mast Arm steel double (60° = 50°) arm w/luminaire F/I AS 97 648-17-75 Mast Arm steel double (45° = 30°) arm w/luminaire F/I AS 98 648-17-90 Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 99 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double (45° = 45°) arm w/luminaire F/I AS 90 648-1A Mast Arm steel double fere for arm w/luminaire F/I AS 90 648-1A Mast Arm steel double fere for arm w/luminaire F/I AS 90 650-1-131 Signal head 12" standard 18-4W F/I AS 90 650-1-313 Signal head 12" standard 18-4W I/O EA 91 650-1-332 Signal head 12" standard 18-4W I/O EA 91 650-1-332 Signal head 12" standard 38-4W I/O EA 91 650-1-333 Signal head 12" standard 38-3W I/O EA 91 650-1-333 Signal head 12" standard 38-3W I/O EA 91 650-1-331 Signal head 12" standard Opt. Programmed 38-	93	648-15-80	Mast Arm steel single arm w/luminaire	F/I	EA	
96 648-17-110 Mast Arm steel double (60' = 50') arm w/luminaire F/I AS 97 648-17-75 Mast Arm steel double (45' = 30') arm w/luminaire F/I AS 98 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/I AS  48" concr. Foundation for concr. Strain poles per 99 648-1A ft. of depth AB' concr. Foundation for mast arms, per ft. of 100 648-1B depth 60" concr. Foundation for mast arms, per ft. of 101 648-1C depth F/I LF 102 648-1D Refurbish existing mast arm per assembly F/I EA 103 650-1-111 Signal head 12" standard 1S-1W F/I AS 104 650-1-112 Signal head 12" standard 1S-2W F/I AS 105 650-1-113 Signal head 12" standard 1S-3W F/I AS 106 650-1-114 Signal head 12" standard 1S-4W F/I AS 107 650-1-131 Signal head 12" standard 3S-1W F/I AS 108 650-1-132 Signal head 12" standard 3S-2W F/I AS 109 650-1-313 Signal head 12" standard 1S-1W I/O EA 110 650-1-311 Signal head 12" standard 1S-1W I/O EA 111 650-1-312 Signal head 12" standard 1S-3W I/O EA 112 650-1-313 Signal head 12" standard 1S-3W I/O EA 113 650-1-314 Signal head 12" standard 1S-3W I/O EA 114 650-1-332 Signal head 12" standard 1S-3W I/O EA 115 650-1-333 Signal head 12" standard 1S-4W I/O EA 116 650-1-331 Signal head 12" standard 3S-1W I/O EA 117 650-2-131 W F/I AS 118 650-2-331 IW F/I AS 119 650-3-313 Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 IW I/O EA 119 650-3-313 Signal head 12" standard Cpt. Programmed 3S- 119 650-3-313 Signal head 12" standard Opt. Programmed 3S- 119 650-3-313 Signal head 12" standard Opt. Programmed 3S- 119 650-3-313 Signal head 12" standard Cpt. Programmed 3S- 119 650-3-313 Signal head 12" standard Cpt. Programmed 3S- 119 650-3-313 Signal head 12" standard Upt. Programmed 3S- 119 650-3-313 Signal head 12" standard Upt. Programmed 3S- 119 650-3-313 Signal head 12" standard Upt. Programmed 3S- 119 650-3-313 Signal head 12" standard Upt. Programmed 3S- 119 650-3-313 Signal head 12" standard Upt. Programmed 3S-	94	648-17-100	Mast Arm steel double (55' + 45') arm w/luminaire	F/I	AS	
97 648-17-75 Mast Arm steel double (45' = 30') arm w/luminaire F/I AS 98 648-17-90 Mast Arm steel double (45' = 45') arm w/luminaire F/I AS 48" concr. Foundation for concr. Strain poles per 100 648-1A ft. of depth 48' concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of depth F/I LF 101 648-1C depth F/I LF 102 648-1D Refurbish existing mast arm per assembly F/I EA 103 650-1-111 Signal head 12" standard 1S-1W F/I AS 104 650-1-112 Signal head 12" standard 1S-2W F/I AS 105 650-1-113 Signal head 12" standard 1S-3W F/I AS 106 650-1-131 Signal head 12" standard 1S-4W F/I AS 107 650-1-131 Signal head 12" standard 3S-1W F/I AS 108 650-1-132 Signal head 12" standard 3S-2W F/I AS 109 650-1-133 Signal head 12" standard 3S-3W F/I AS 110 650-1-313 Signal head 12" standard 3S-3W F/I AS 110 650-1-314 Signal head 12" standard 1S-2W I/O EA 111 650-1-315 Signal head 12" standard 1S-2W I/O EA 112 650-1-313 Signal head 12" standard 1S-2W I/O EA 113 650-1-314 Signal head 12" standard 1S-2W I/O EA 114 650-1-331 Signal head 12" standard 1S-4W I/O EA 115 650-1-332 Signal head 12" standard 3S-1W I/O EA 116 650-1-333 Signal head 12" standard 3S-2W I/O EA 117 650-2-331 Signal head 12" standard 3S-3W I/O EA 118 650-2-331 IW F/I AS 119 650-3-31 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 119 650-3-31 Signal head 12" standard Opt. Programmed 3S-1W I/O EA	95	648-17-105	Mast Arm steel double (60' = 45") arm w/luminaire	F/I	AS	
98 648-17-90 Mast Arm steel double (45" = 45") arm w/luminaire F/I AS  48" concr. Foundation for concr. Strain poles per ft. of depth 48" concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of ff/I LF 101 648-1C depth F/I LF 102 648-1D Refurbish existing mast arm per assembly F/I EA 103 650-1-111 Signal head 12" standard 1S-1W F/I AS 104 650-1-112 Signal head 12" standard 1S-2W F/I AS 105 650-1-113 Signal head 12" standard 1S-3W F/I AS 106 650-1-114 Signal head 12" standard 1S-4W F/I AS 107 650-1-131 Signal head 12" standard 3S-1W F/I AS 108 650-1-132 Signal head 12" standard 3S-2W F/I AS 109 650-1-133 Signal head 12" standard 3S-3W F/I AS 110 650-1-311 Signal head 12" standard 3S-3W F/I AS 111 650-1-312 Signal head 12" standard 1S-1W I/O EA 111 650-1-313 Signal head 12" standard 1S-2W I/O EA 111 650-1-314 Signal head 12" standard 1S-3W I/O EA 112 650-1-313 Signal head 12" standard 1S-3W I/O EA 113 650-1-314 Signal head 12" standard 1S-3W I/O EA 114 650-1-331 Signal head 12" standard 3S-1W I/O EA 115 650-1-332 Signal head 12" standard 3S-2W I/O EA 116 650-1-333 Signal head 12" standard 3S-2W I/O EA 117 650-2-131 IW F/I AS 118 650-2-331 IW I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 IW I/O EA	96	648-17-110	Mast Arm steel double (60' = 50') arm w/luminaire	F/I	AS	
48" concr. Foundation for concr. Strain poles per ft. of depth 48" concr. Foundation for mast arms, per ft. of depth 48" concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of 101 648-1C depth F/I LF 102 648-1D Refurbish existing mast arm per assembly F/I EA 103 650-1-111 Signal head 12" standard 1S-1W F/I AS 104 650-1-112 Signal head 12" standard 1S-2W F/I AS 105 650-1-113 Signal head 12" standard 1S-3W F/I AS 106 650-1-114 Signal head 12" standard 1S-4W F/I AS 107 650-1-131 Signal head 12" standard 3S-1W F/I AS 108 650-1-132 Signal head 12" standard 3S-2W F/I AS 109 650-1-133 Signal head 12" standard 3S-3W F/I AS 110 650-1-311 Signal head 12" standard 3S-3W F/I AS 110 650-1-311 Signal head 12" standard 1S-1W I/O EA 111 650-1-312 Signal head 12" standard 1S-2W I/O EA 111 650-1-313 Signal head 12" standard 1S-2W I/O EA 112 650-1-313 Signal head 12" standard 1S-3W I/O EA 113 650-1-314 Signal head 12" standard 1S-3W I/O EA 114 650-1-331 Signal head 12" standard 1S-4W I/O EA 115 650-1-332 Signal head 12" standard 3S-1W I/O EA 115 650-1-333 Signal head 12" standard 3S-3W I/O EA 116 650-1-333 Signal head 12" standard 3S-3W I/O EA 116 650-1-333 Signal head 12" standard 3S-3W I/O EA 116 650-1-331 Signal head 12" standard 3S-3W I/O EA 116 650-1-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 116 650-2-331 I/W Signal head 12" standard Opt. Programmed 3S-1/I/O EA 118 650-2-331 I/W Signal head 12" standard Opt. Programmed 3S-1/I/O EA 118 650-2-331 I/W Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1/I/O EA 119 650-3-131 Signal head 12" standard Upt. Programmed 3S-1/I/O EA 119 650-3-131 Signa	97	648-17-75	Mast Arm steel double (45' = 30') arm w/luminaire	F/I	AS	
99 648-1A ft. of depth 48' concr. Foundation for mast arms, per ft. of depth 60" concr. Foundation for mast arms, per ft. of 648-1B depth 60" concr. Foundation for mast arms, per ft. of 60" concr. Foundation for mast arms, per ft. of 60" concr. Foundation for mast arms, per ft. of 684-1C depth F/I LF 102 648-1D Refurbish existing mast arm per assembly F/I EA 103 650-1-111 Signal head 12" standard 1S-1W F/I AS 104 650-1-112 Signal head 12" standard 1S-2W F/I AS 105 650-1-113 Signal head 12" standard 1S-3W F/I AS 106 650-1-114 Signal head 12" standard 1S-4W F/I AS 107 650-1-131 Signal head 12" standard 3S-1W F/I AS 108 650-1-132 Signal head 12" standard 3S-2W F/I AS 109 650-1-133 Signal head 12" standard 3S-3W F/I AS 110 650-1-311 Signal head 12" standard 3S-3W F/I AS 110 650-1-312 Signal head 12" standard 1S-1W I/O EA 111 650-1-312 Signal head 12" standard 1S-2W I/O EA 112 650-1-313 Signal head 12" standard 1S-3W I/O EA 113 650-1-314 Signal head 12" standard 1S-3W I/O EA 114 650-1-331 Signal head 12" standard 1S-4W I/O EA 115 650-1-332 Signal head 12" standard 3S-1W I/O EA 116 650-1-332 Signal head 12" standard 3S-2W I/O EA 116 650-1-333 Signal head 12" standard 3S-2W I/O EA 116 650-1-333 Signal head 12" standard 3S-3W I/O EA 116 650-1-333 Signal head 12" standard 3S-3W I/O EA 116 650-2-331 Signal head 12" standard 3S-3W I/O EA 117 650-2-131 Signal head 12" standard Opt. Programmed 3S-1W F/I AS 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-2-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 118 650-3-331 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 119 650-3-131 Signal head 12" standard Opt. Programmed 3S-1W I/O EA 119 650-3-131 Sig	98	648-17-90	Mast Arm steel double (45' = 45') arm w/luminaire	F/I	AS	
100         648-1B         depth 60" concr. Foundation for mast arms, per ft. of 60" concr. Foundation for mast arms, per ft. of depth         F/I         LF           101         648-1C         depth         F/I         LF           102         648-1D         Refurbish existing mast arm per assembly         F/I         EA           103         650-1-111         Signal head 12" standard 1S-1W         F/I         AS           104         650-1-112         Signal head 12" standard 1S-2W         F/I         AS           105         650-1-113         Signal head 12" standard 1S-3W         F/I         AS           106         650-1-131         Signal head 12" standard 3S-1W         F/I         AS           107         650-1-132         Signal head 12" standard 3S-3W         F/I         AS           109         650-1-313         Signal head 12" standard 1S-1W         I/O         EA           110         650-1-311         Signal head 12" standard 1S-2W         I/O         EA           111         650-1-313         Signal head 12" standard 1S-3W         I/O         EA           112         650-1-314         Signal head 12" standard 3S-1W         I/O         EA           114         650-1-332         Signal head 12" standard 3S-3W         I/	99	648-1A	ft. of depth	F/I	LF	
101       648-1C       depth       F/I       LF         102       648-1D       Refurbish existing mast arm per assembly       F/I       EA         103       650-1-111       Signal head 12" standard 1S-1W       F/I       AS         104       650-1-112       Signal head 12" standard 1S-2W       F/I       AS         105       650-1-113       Signal head 12" standard 1S-3W       F/I       AS         106       650-1-13       Signal head 12" standard 3S-1W       F/I       AS         107       650-1-131       Signal head 12" standard 3S-2W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-313       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-4W       I/O       EA         113       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         114       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         115       650-1-333       Signal head 12" standard Opt. Programmed 3S-1W       I/O       EA </td <td>100</td> <td>648-1B</td> <td>depth</td> <td>F/I</td> <td>LF</td> <td></td>	100	648-1B	depth	F/I	LF	
103       650-1-111       Signal head 12" standard 1S-1W       F/I       AS         104       650-1-112       Signal head 12" standard 1S-2W       F/I       AS         105       650-1-113       Signal head 12" standard 1S-3W       F/I       AS         106       650-1-114       Signal head 12" standard 1S-4W       F/I       AS         107       650-1-131       Signal head 12" standard 3S-1W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-2W       F/I       AS         109       650-1-133       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-3W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-4W       I/O       EA         113       650-1-314       Signal head 12" standard 3S-1W       I/O       EA         114       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         115       650-1-333       Signal head 12" standard Opt. Programmed 3S-         117       650-2-131       IW       F/I       AS         Signal head 12" standa	101	648-1C		F/I	LF	
104       650-1-112       Signal head 12" standard 1S-2W       F/I       AS         105       650-1-113       Signal head 12" standard 1S-3W       F/I       AS         106       650-1-114       Signal head 12" standard 1S-4W       F/I       AS         107       650-1-131       Signal head 12" standard 3S-1W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-3W       F/I       AS         109       650-1-133       Signal head 12" standard 1S-1W       I/O       EA         110       650-1-311       Signal head 12" standard 1S-2W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-3W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-4W       I/O       EA         113       650-1-314       Signal head 12" standard 3S-1W       I/O       EA         114       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         115       650-1-333       Signal head 12" standard 3S-3W       I/O       EA         116       650-2-131       1W       F/I       AS         117       650-2-131       1W       F/I       AS         118       650-2-33	102	648-1D	Refurbish existing mast arm per assembly	F/I	EA	
105       650-1-113       Signal head 12" standard 1S-3W       F/I       AS         106       650-1-114       Signal head 12" standard 1S-4W       F/I       AS         107       650-1-131       Signal head 12" standard 3S-1W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-2W       F/I       AS         109       650-1-133       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard Opt. Programmed 3S-       F/I       AS         117       650-2-131       1W       F/I       AS         118       650-2-331       1W       I/O       EA         119	103	650-1-111	Signal head 12" standard 1S-1W	F/I	AS	
106       650-1-114       Signal head 12" standard 1S-4W       F/I       AS         107       650-1-131       Signal head 12" standard 3S-1W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-2W       F/I       AS         109       650-1-133       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard Opt. Programmed 3S-1W       F/I       AS         117       650-2-131       1W       F/I       AS         118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS <td>104</td> <td>650-1-112</td> <td>Signal head 12" standard 1S-2W</td> <td>F/I</td> <td>AS</td> <td></td>	104	650-1-112	Signal head 12" standard 1S-2W	F/I	AS	
107       650-1-131       Signal head 12" standard 3S-1W       F/I       AS         108       650-1-132       Signal head 12" standard 3S-2W       F/I       AS         109       650-1-313       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard Opt. Programmed 3S-1W       F/I       AS         117       650-2-131       IW       F/I       AS         118       650-2-331       IW       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	105	650-1-113	Signal head 12" standard 1S-3W	F/I	AS	-
108       650-1-132       Signal head 12" standard 3S-2W       F/I       AS         109       650-1-313       Signal head 12" standard 3S-3W       F/I       AS         110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-3W       I/O       EA         116       650-1-333       Signal head 12" standard Opt. Programmed 3S-1W       F/I       AS         117       650-2-131       IW       F/I       AS         118       650-2-331       IW       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	106	650-1-114	Signal head 12" standard 1S-4W	F/I	AS	-
109 650-1-133 Signal head 12" standard 3S-3W F/I AS 110 650-1-311 Signal head 12" standard 1S-1W I/O EA 111 650-1-312 Signal head 12" standard 1S-2W I/O EA 112 650-1-313 Signal head 12" standard 1S-3W I/O EA 113 650-1-314 Signal head 12" standard 1S-4W I/O EA 114 650-1-331 Signal head 12" standard 3S-1W I/O EA 115 650-1-332 Signal head 12" standard 3S-2W I/O EA 116 650-1-333 Signal head 12" standard 3S-3W I/O EA 117 650-2-131 IW F/I AS Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 IW I/O EA 119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	107	650-1-131	Signal head 12" standard 3S-1W	F/I	AS	
110       650-1-311       Signal head 12" standard 1S-1W       I/O       EA         111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard 3S-3W       I/O       EA         117       650-2-131       1W       F/I       AS         118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	108	650-1-132	Signal head 12" standard 3S-2W	F/I	AS	
111       650-1-312       Signal head 12" standard 1S-2W       I/O       EA         112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard 3S-3W       I/O       EA         117       650-2-131       1W       F/I       AS         118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	109	650-1-133	Signal head 12" standard 3S-3W	F/I	AS	
112       650-1-313       Signal head 12" standard 1S-3W       I/O       EA         113       650-1-314       Signal head 12" standard 1S-4W       I/O       EA         114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard 3S-3W       I/O       EA         Signal head 12" standard Opt. Programmed 3S-1W       F/I       AS         117       650-2-131       1W       F/I       AS         118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	110	650-1-311	Signal head 12" standard 1S-1W	I/O	EA	
113 650-1-314 Signal head 12" standard 1S-4W I/O EA  114 650-1-331 Signal head 12" standard 3S-1W I/O EA  115 650-1-332 Signal head 12" standard 3S-2W I/O EA  116 650-1-333 Signal head 12" standard 3S-3W I/O EA  Signal head 12" standard Opt. Programmed 3S-  117 650-2-131 1W F/I AS  Signal head 12" standard Opt. Programmed 3S-  118 650-2-331 1W I/O EA  119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	111	650-1-312	Signal head 12" standard 1S-2W	I/O	EA	
114       650-1-331       Signal head 12" standard 3S-1W       I/O       EA         115       650-1-332       Signal head 12" standard 3S-2W       I/O       EA         116       650-1-333       Signal head 12" standard 3S-3W       I/O       EA         Signal head 12" standard Opt. Programmed 3S-1W       F/I       AS         Signal head 12" standard Opt. Programmed 3S-1W       I/O       EA         118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	112	650-1-313	Signal head 12" standard 1S-3W	I/O	EA	
115 650-1-332 Signal head 12" standard 3S-2W I/O EA  116 650-1-333 Signal head 12" standard 3S-3W I/O EA  Signal head 12" standard Opt. Programmed 3S-  117 650-2-131 1W F/I AS  Signal head 12" standard Opt. Programmed 3S-  118 650-2-331 1W I/O EA  119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	113	650-1-314	Signal head 12" standard 1S-4W	I/O	EA	
116 650-1-333 Signal head 12" standard 3S-3W I/O EA Signal head 12" standard Opt. Programmed 3S- 117 650-2-131 1W F/I AS Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 1W I/O EA 119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	114	650-1-331	Signal head 12" standard 3S-1W	I/O	EA	
116 650-1-333 Signal head 12" standard 3S-3W I/O EA Signal head 12" standard Opt. Programmed 3S- 117 650-2-131 1W F/I AS Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 1W I/O EA 119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	115	650-1-332	Signal head 12" standard 3S-2W	I/O	EA	
Signal head 12" standard Opt. Programmed 3S- 117 650-2-131 1W F/I AS Signal head 12" standard Opt. Programmed 3S- 118 650-2-331 1W I/O EA 119 650-3-131 Signal head 12" standard Light Weight, 3S-1W F/I AS	116		· ·	I/O	EA	
118       650-2-331       1W       I/O       EA         119       650-3-131       Signal head 12" standard Light Weight, 3S-1W       F/I       AS	117		1W	F/I	AS	
	118	650-2-331		I/O	EA	
	119	650-3-131	Signal head 12" standard Light Weight, 3S-1W	F/I	AS	

page 5	Pay Item #	Description	Oper.	Units	Unit Price
121	650-3-133	Signal head 12" standard, Light Weight 3S-3W	F/I	AS	
122	650-3-331	Signal head 12" standard, Light Weight 3S-1W	I/O	EA	
123	650-3-332	Signal head 12" standard, Light Weight, 3S-2W	I/O	EA	
124	650-3-333	Signal head 12" standard, Light Weight 3S-3W	I/O	EA	
125	650-8-151	Signal head 12" light weight 5S-1W	F/I	AS	
126	650-8-152	Signal head 12" light weight 5S-2W	F/I	AS	
127	650-8-351	Signal head 12" light weight 5S-1W	I/O	EA	
128	650-8-352	Signal head 12" light weight 5S-2W	I/O	EA	
129	650-9-151	Signal head 12" standard 5S-1W	F/I	AS	
130	650-9-152	Signal head 12" standard 5S-2W	F/I	AS	
131	650-9-351	Signal head 12" standard 5S-1W	I/O	EA	
132	650-9-352	Signal head 12" standard 5S-2W	I/O	EA	
133	653-181	16" Ped. Signal. LED, International Symbol 1-way	F/I	AS	
134	653-182	16" Ped. Signal. LED, International Symbol 2-way	F/I	AS	
135	653-381	16" Ped. Signal LED, International Symbol 1-way	I/O	AS	
136	653-382	16" Ped. Signal LED, International Symbol 2- way	I/O	AS	
137	659-101	Signal Back Plates 3-Section	F/I	AS	
138	659-104	Signal Lamps 140W max F/I	F/I	EA	
139	659-106	Tunnel Visor	F/I	EA	
140	659-107	Aluminum Pedestal	F/I	EA	
141	659-108	Steel Pedestal	F/I	EA	
142	659-109	Concrete Pedestal Type II	F/I	EA	
143	659-110	Louvers	F/I	EA	
144	659-111	Back Plates 1 Section	F/I	AS	
145	659-112	Mounting Brackets 2 way	F/I	EA	
146	659-116	Back Plates 5 Section Cluster	F/I	AS	
147	659-199	Temporary Signal Display	F/I	PI	
148	659-204	Signal Lamps 140W max	F/O	EA	
149	660-1-101	Loop detector inductive Type 1	F/I	EA	
150	660-1-102	Loop detector inductive Type 2	F/I	EA	

page 6					Unit
Item #	Pay Item #	Description	Oper.	Units	Price
151	660-1-103	Loop detector inductive Type 3	F/I	EA	
152	660-1-104	Loop detector inductive Type 4	F/I	EA	
153	660-1-105	Loop detector inductive Type 5	F/I	EA	
154	660-1-106	Loop detector inductive Type 6	F/I	EA	
155	660-1-109	Loop detector inductive Type 9	F/I	EA	
156	660-1-110	Loop detector inductive Type 10	F/I	EA	
157	660-2-101	Loop assembly Type A	F/I	AS	
158	660-2-102	Loop assembly Type B	F/I	AS	
159	660-2-106	Loop assembly Type F	F/I	AS	
160	660-4-4	AWG #14 Loop lead-in cable	F/I	LF	
161	660-4-4A	6 pair overhead beldon	F/I	LF	
162	663-74-14	Vehicle Detector Assembly-Microwave	F/I	AS	
163	665-11	Pedestrian Detector	F/I	AS	
164	665-12	Ped. Detector w/post	F/I	AS	
165	665-13	Ped. Detector (Detector Station w/Sign Only)	F/I	AS	
166	670-110-A	Cabinet, Base Only	F/I	EA	
167	670-110-B	Install Cabinet Only	I/O	EA	
168	671-2-11	Naztec with Ethernet Enabled TS2 Type 2 (Controller Only) 8 Phase Controller Ass'y – NAZTEC with	F/I	EA	
169	670-5-111	Ethernet	F/I	AS	
170	670-4-1A	Flashing Beacon Controller Assembly for School Zone - Solar Powered	F/I	AS	
171	670-4-1B	Flashing Beacon Controller Assembly for School Zone - AC Powered Flashing Beacon Controller Assembly, Pole mount for Warning Flasher Solar Powered for	F/I	AS	
172	670-4-1C	24 hour operation	F/I	AS	
173	685-306	UPS	I/O	AS	
174	676-140	Cabinet Modification 4 hr	F/I	HR	
175	690-10	Remove Signal Head Assembly	R	EA	

page 7					Unit
Item #	Pay Item #	Description	Oper.	Units	Price
176	690-100	Remove misc. Signal Equipment	R	EA	
177	690-20	Remove Pedestrian Head Assembly	R	EA	
178	690-30	Remove Concrete Strain Pole	R	EA	
179	690-31	Remove Signal Pedestal	R	EA	
180	690-40	Remove Master Arm-Assembly	R	EA	
181	690-50	Remove Controller Assembly	R	EA	
182	690-60	Remove Vehicle Detector Assembly	R	EA	
183	690-70	Remove Pedestrian Detector Assembly	R	EA	
184	690-80	Remove Span-Wire Assembly	R	EA	
185	690-90	Remove Conduit & Cabling	R	PI	
186	690-91	Remove Interconnect Cable	R	LF	
187	700-46-25	Relocate Existing Overhead Sign	RL	AS	
188	700-82	Install Overhead Sign	F/I	EA	
189	699-1-1	Internally Illuminated Sign 24" x 48"	F/I	AS	
190	699-1-1	Internally Illuminated Sign 24" x 72"	F/I	AS	
191	699-1-1	Internally Illuminated Sign 24" x 96"	F/I	AS	
192	700-89-2A	Fiber Optic Blank-out Sign 30" x 30"	F/I	AS	
193	700-89-2B	Fiber Optic Blank-out Sign 24" x 24"	F/I	AS	
194	700-89-3	Fiber Optic changeable mess. Sign (2-mess.) 30" x 30"	F/I	EA	
195	70090-14	Overhead Sch. Zone Assem. (sign & flasing beacon complete)	F/I	AS	
196	706-3	RPM's	F/I	EA	
197	711-4	Directional arrows	F/I	EA	
198	659-104A	Traffic signal bulb (Max.150w.) (Less than 120 minimum 30)	P/I	EA	
199	711-7	Remove Thermoplastic	R		
200	711-35	6" White Thermo Stripe	F/I	LF	
201	711-36	6" Yellow Thermo Stripe	F/I	LF	
202	663-70A	Vehicle detector ass'y (Optical) 2-way	F/I	AS	
203	663-70B	Vehicle detector ass'y (Optical) 3-way	F/I	AS	
204	663-70C	Vehicle detector ass'y (Optical) 4-way	F/I	AS	

# SECTION 4 – FEE SCHEDULE/ CERTIFICATIONS/ SIGNATURES RFP Number: 11-0403

page 8					Unit
Item #	Pay Item #	Description	Oper.	Units	Price
205	660-70D	Vehicle detector ass'y (Optical) relocate	RL	AS	
		<u>Video Detection</u>			
206	663-74-11	Video vehicle detection system	F/I	EA	
207	663-74	Video detection system monitor only	F	EA	
		Fiber-Optic and ITS Components			
208	E685-159	Sys. Aux. (Fiber-optic enclosure type 1)	F/I	EA	
209	E685-160	Sys. Aux. (Fiber-optic enclosure type 2)	F/I	EA	
210	E685-161	Sys. Aux. (Fiber-optic enclosure type 3)	F/I	EA	
211	E685-162	Sys. Aux. (Fiber-optic connector panel)	F/I	EA	
212	E685-163	Sys. Aux. (Fiber-optic enclosure rack mount	F/I	EA	
213	E685-164	Sys. Aux. (Fiber-optic adapter/coupler ST MM)	F/{	EA	
214	E685-165	Sys. Aux. (Fiber-optic adapter/coupler ST SM)	F/I	EA	
215	E685-166	Sys. Aux. (Fiber-optic jumper MM ST to ST)	F/I	EA	
216	E685-167	Sys. Aux. (Fiber-optic jumper SM ST to ST	F/I	EA	
217	E685-168	Sys. Aux. (Fiber-optic connector ST MM)	F/I	EA	
218	E685-169	Sys. Aux. (Fiber-optic connector ST SM)	F/I	EA	
040	E005 470	Sys. Aux. (Fiber-optic splice fusion greater than	<b>-</b> /	<b>-</b> ^	
219	E685-170	100)	F/I	EA	
220	E685-171	Sys. Aux. (Fiber-optic splice fusion less than 100)	F/I	EA	
221	E685-172	Sys. Aux. (Buffer tube fan-out)	F/I	EA	
222	E685-173	Sys. Aux. (Splice tray)	F/I	EA	
223	E685-174	Sys. Aux. (Buried fiber-optic splice enclosure)	F/I	EA	
224	E685-175	Sys. Aux. (Fiber-optic cable storage device)	F/I	EA	
225	E685-101	Camera Assembly	F/I	AS	
226	E686-102A	Monitor 9"	F/I	EA	
227	E686-102B	Monitor 27"	F/I	EA	
228	E686-102C	Monitor 32"	F/I	EA	
229	E686-202A	Monitor 9"	F/O	EA	
230	E686-202B	Monitor 27"	F/O	EA	
231	E686-202C	Monitor 32"	F/O	EA	

page 9					Unit
Item #	Pay Item #	Description	Oper.	Units	Price
232	633-113-2	Cable fiber-optic 26-50 fibers aerial (24sm/12mm)	F/I	LF	
233	633-123-1	Cable fiber-optic 1-25 fibers underground (12sm/12mm)	F/I	LF	
234	633-123-2	Cable fiber-optic 26-50 fibers underground (24sm/mm)	F/I	LF	

# GROUP II SCHEDULE OF UNIT PRICES MAINTENANCE

ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE
M-2-R	LEVEL II TECHNICIAN, W/BUCKET TRUCK REGULAR TIME	PER/HR	
M-2-O	LEVEL II TECHNICIAN, W/BUCKET TRUCK OVERTIME	PER/HR	
M-1-R	LEVEL I TECHNICIAN, W/BUCKET TRUCK REGULAR TIME	PER/HR	
M-1-O	LEVEL I TECHNICIAN, W/BUCKET TRUCK OVERTIME	PER/HR	
M-H-R	HELPER REGULAR TIME	PER/HR	
M-H-O	HELPER OVERTIME	PER/HR	
REGUL	AR BUSINESS HOURS, MONDAY THROUGH FRIDAY, 7AM -	- 5PM	
T – 1	TECHNICIAN, LEVEL I	PER/HR	
T – 2	TECHNICIAN, LEVEL II	PER/HR	
T – 3	TECHNICIAN, LEVEL III	PER/HR	
AFTER	HOURS 5PM - 7AM		
T – 1	TECHNICIAN, LEVEL I	PER/HR	
T – 2	TECHNICIAN, LEVEL II	PER/HR	
T – 3	TECHNICIAN, LEVEL III	PER/HR	

# SECTION 4 – FEE SCHEDULE/ CERTIFICATIONS/ SIGNATURES RFP Number: 11-0403

# By Signing this Proposal the Proposer Attests and Certifies that:

- It satisfies all legal requirements (as an entity) to do business with the County.
- The undersigned vendor acknowledges that award of a contract may be contingent upon a determination by the County that the vendor has the capacity and capability to successfully perform the contract.
- The proposer hereby certifies that it understands all requirements of this solicitation, and that the undersigned individual is duly authorized to execute this proposal document and any contract(s) and/or other transactions required by award of this solicitation.

	ertification Regarding Acceptance of County Electronic Payable Process endor will accept payment using the County's VISA-based electronic payment system:   Yes  No							
would you sell under the same terms and condi of Florida? Each governmental agency desiri	nent Agencies ontract award. If Lake County awarded you the proposed contract, itions, for the same price, to other governmental agencies in the State ing to accept to utilize this contract shall be responsible for its own or services ordered and received by it.   Yes No (Check one)							
<b>Certification Regarding Felony Conviction</b> Has any officer, director, or an executive perf felony during the past ten (10) years? Yes	Forming equivalent duties, of the bidding entity been convicted of a No (Check one)							
to ownership, other clients, contracts, or intereunderstanding, agreement, or connection with	Conflict of Interest Disclosure Certification Except as listed below, no employee, officer, or agent of the firm has any conflicts of interest, real or apparent, due o ownership, other clients, contracts, or interests associated with this project; and, this bid is made without prior inderstanding, agreement, or connection with any corporation, firm, or person submitting a proposal for the same services, and is in all respects fair and without collusion or fraud.							
<b>DUNS Number</b> (Insert if this action involves a	federal funded project):							
General Vendor Information and Propos	sal Signature:							
Firm Name:								
Street Address:								
Mailing Address (if different):								
	No.: E-mail:							
	Prompt Payment Terms: % days, net							
Signature:								
Print Name:	Title:							
Award of Contract by the County: (Office	cial Use Only)							
	I to the above-identified vendor under the above identified generated by the County to support the contract.							
Vendor awarded as:								
Sole vendor	☐ Pre-qualified pool vendor based on price							
Pre-qualified pool vendor (spot bid)	Primary vendor for items:							
Secondary vendor for items:	Other status:							
	Date:							
Printed name:	Title:							
Purchase Order Number assigned to this contract	ct for billing purposes:							

# THE FOLLOWING DOCUMENTS ARE ATTACHED

**Attachment 1: Firm Profile** 

**Attachment 2: Outside Firm Form** 

**Attachment 3: Resumes** 

Attachment 4: Similar Projects Form Attachment 5: Additional Information

**Exhibit A: Traffic Signals** 

**Exhibit B: State of Florida Technical Special Provisions** 

# **Attachment 1: Firm Profile**

Bidder Name & Address:	1d. Licensed to do business in the State of Florida? Yes No
	Name, Title & Telephone Number of Principal to Contact
1a. FEIN#	1f. Address of office to perform work, if different from Item 1
1b. Year Firm was established	
1c. Are you a "Not for Profit" 501(c)(3) organization?	
Yes No	
If you answered yes, please provide proof.	
Please list the key personnel that your firm w key person's resume.	ill commit to the County project and attach a copy of each
3. The foregoing is a statement of facts.	
Signature:	Date:
(Typed or Printed Name)	(Title)

# **Attachment 2: Outside Firms**

Brief resumes of outside firms and other key persons who shall be assigned to the project. (Brief resumes and additional information may be attached.)					
4.					
Name & Address	Specialty	Worked with prime before (Yes or No)			
1)		·			
2)					
3)					
4)					
5)					
6)					
7)					
8)					
9)					
10)					

a. Name & Title:	a. Name & Title:
b. Project assignment:	b. Project assignment:
c. Name of firm with which associated:	c. Name of firm with which associated:
d. Years experience:	d. Years experience:
With this firm With other firms	With this firm With other firms
d. Education: Degree(s)/year/school/specialization	d. Education: Degree(s)/year/school/specialization
e. Active registration: Year first registered/discipline	e. Active registration: Year first registered/discipline
f. Other experience and qualifications relevant to the proposed project:	f. Other experience and qualifications relevant to the proposed project:

# **Attachment 4: Similar Projects**

Work by firm or joint venture members which best illustrate current qualifications relevant to the County's project that have been/is being accomplished by personnel that shall be assigned to the County's project. List no more than ten (10) projects.

		In the area of the
Project Name & Location		Project Owners Name & Address
Completion Date (Actual or Estimated		
Estimated Cost (In Thousands)		Project Owner's Contact Person, Title, &
Estimated Cost (III Thousands)		Telephone Number
Entire Project	Work for which firm was/is	
	responsible	
\$	\$	
Ψ	7	
Scope of Entire Project (Please give qu	uantitive indications wherever possible	e)
Nature of Firm's Responsibility in Proj	ect (Please give quantitive indications	s wherever possible)
	nment) That Worked on the Stated Pro	ject that Shall Be Assigned to the County's
<u>Project</u>		

# **Attachment 5: Additional Information**

Tr. d'					
Use this space to provide any additional information or description of resources (Including any design capabilities) supporting your firm's qualifications for the County's project.					
capabilities) supporting your firms quantications for the County's project.					
1. The foregoing is a statement of facts.					
SignatureTelephone Number					
Typed Name and Title:					

# **EXHIBIT A**

	EXHIBIT A  LAKE COUNTY Traffic Signals						
1							
2	C.R.25A	C.R.466A (MILLER)	54	RADIO RD.	JACKSON ST. Flasher		
3	C.R.33	C.R.48 / C.R.470	55	Old 441	LAKESHORE BV. Flasher		
4	THOMAS	GRIFFIN RD	56	C.R.33	C.R.48		
	AV						
5	C.R.44	C.R.452	57	EB C.R.42	DEERHAVEN Flasher		
6	C.R.44	C.R.473	58	WB C.R.42	DEERHAVEN Flasher		
7	C.R.468	C.R.44C	59	C.R.44A	C.R.439		
8	OLD 441	BAY RD	60	EB C.R.44A	C.R.439 Flasher		
9	RADIO RD	SHADEMOOR DR	61	WB C.R.44A	C.R.439 Flasher		
10	C.R.19A	DAVID WALKER DR	62	C.R.44	HAINES CREEK BRIDGE (NAVIGATION)		
11	C.R.561	C.R.448	63	C.R.455	PARK LANE		
12	S.R.19	C.R.44 Bypass	64	SB C.R.561	S-CURVE FLASHER		
13	S.R.19	C.R.48	65	NB C.R.561	S-CURVE FLASHER		
14	S.R.19	LANE PARK RD / LANE PARK CUTOFF	66	S.R.19	CENTRAL AV		
15	S.R.19	WOODLEA RD	67	S.R.19	C.R.42		
16	S.R.44	C.R.437	68	EB S.R.40	ASTOR Speed Flasher		
17	S.R.44	C.R.44 Bypass	69	WB S.R.40	ASTOR Speed Flasher		
18	S.R.44	C.R.44B	70	S.R.44	C.R.42		
19	S.R.46	C.R.46A	71	U.S.27	EAGLESNEST RD.		
20	S.R.46	C.R.435	72	U.S.27	HAWTHORNE BV.		
21	S.R.46	C.R.437 NORTH		SCHOOL FLASHERS			
22	S.R.46	C.R.437 SOUTH	73	NB HANCOCK RD	WINDY HILL MIDDLE		
23	S.R.50	C.R.455	74	SB HANCOCK RD	WINDY HILL MIDDLE		
24	S.R.50	GREATER HILLS BV	75	EB ROLLING ACRES RD	VILLAGES ELEMENTARY		
25	S.R.50	HANCOCK RD	76	WB ROLLING ACRES RD	VILLAGES ELEMENTARY		
26	S.R.50	CITRUS TOWER BV	77	NB ROUND LAKE RD	ROUND LAKE ELEMENTARY		
27	U.S.27	ROLLING ACRES RD	78	SB ROUND LAKE RD	ROUND LAKE ELEMENTARY		
28	U.S.27	WATER OAKS BV	79	EB TREADWAY RD	TREADWAY ELEMENTARY		
29	U.S.27	C.R.25A (North DIXIE)	80	WB TREADWAY RD	TREADWAY ELEMENTARY		
30	U.S.27	C.R.33	81	EB C.R.42	SPRING CREEK ELEMENTARY		
31	U.S.27	C.R.48	82	WB C.R.42	SPRING CREEK ELEMENTARY		
32	U.S.27	PLANTATIONS BV	83	NB C.R.44	EUSTIS MIDDLE		
33	U.S.27	TURNPIKE / S.R.19	84	SB C.R.44	EUSTIS MIDDLE		
34	U.S.27	C.R.561 NORTH	85	NB C.R.473	TREADWAY ELEMENTARY		
35	U.S.27	C.R.561 South / LAKE MINNEOLA SHORES	86	SB C.R.473	TREADWAY ELEMENTARY		
36	U.S.27	OLD 50 / WASHINGTON ST	87	NB C.R.561	PINE RIDGE ELEMENTARY		
37	U.S.27	CITRUS TOWER BV	88	SB C.R.561	PINE RIDGE ELEMENTARY		
38	U.S.27	HARTWOOD MARSH RD	89	NB SR19 (ALTOONA)	LIFESTREAM		
39	U.S.27	C.R.474	90	SB SR19 (ALTOONA)	LIFESTREAM		
40	U.S.27	WOODCREST WY		NEW SI	GNALS Coming soon		
41	U.S.441	C.R.44	1	C.R.44	C.R.44A		
42	U.S.441	COLLEGE DR	2	CITRUS TOWER BV	JOHNS LAKE RD		

# **SECTION 5 – ATTACHMENTS**

43	U.S.441	RADIO RD	3	U.S.27	JOHNS LAKE RD
44	U.S.441	LAKE SQUARE MALL	4	U.S.27	CAGAN CROSSINGS BV
45	U.S.441	LAKES BV	5	U.S.27	MONARCH BV
46	U.S.441	C.R.473	6	U.S.27	WESTON HILLS
47	U.S.441	HUFFSTETLER DR	7	S.R.50	OAKLEY SEAVER RD
48	U.S.441	DAVID WALKER DR	8	C.R.466	ROLLING ACRES RD
49	U.S.441	MORNINGSIDE DR	9	C.R.561	C.R.48
50	U.S.441	E.CROOKED LK. DR	10	S.R.44	LONE OAK RD
51	U.S.441	COUNTRY CLUB BV	11	U.S.441	LINCOLN AV
52	U.S.441	WOLFBRANCH RD	12	S.R.19	C.R.450 EAST
53	U.S.192	TOWN CENTER BV	13	HANCOCK RD	HOOKS ST
			14	HANCOCK RD	JOHNS LAKE RD
			15	S.R.50	C.R.565A
			16	C.R.44A	ESTES
			17	S.R.19	C.R.448
			18	C.R.474	SUNRISE

90

			LEES
1	U.S.27	DR. MARTIN LUTHER KING JR.	
2	U.S.27	PICCIOLA RD	
3	U.S.27	NORTH LAKE PLAZA - K-MART	
4	U.S.27	GRIFFIN RD	
5	U.S.27	PALM PLAZA	
6	U.S.27	HILL ST	
7	U.S.27	CITIZENS BV	
8	U.S.27	CENTER ST	
9	U.S.27	MAIN ST	
10	U.S.27	MEADOWS AV (High School)	
11	U.S.27	SUMTER ST	
12	U.S.27	S.R.44 (DIXIE AV)	
13	U.S.27	GUNSTON ST	
14	U.S.441	CITIZENS BV	
15	U.S.441	PERKINS ST	
16	U.S.441	LEE ST	
17	U.S.441	3RD ST	
18	U.S.441	CANAL ST	
19	U.S.441	S.R.44 (Dixie AV) / NEWELL HILL RD	
20	S.R.44	MAIN ST	
21	S.R.44	LAKE ST	
22	S.R.44	CANAL ST	
23	S.R.44	9TH ST	
24	S.R.44	12Th ST	
25	S.R.44	C.R.468	
26	MAIN ST	CANAL ST	
27	MAIN ST	3RD ST	
28	MAIN ST	6TH ST	

ESBURG	Signal	Agreement			
	BEACONS AND FLASHERS				
	32	S.R.44	LAKE PORT SQUARE		
	33	MAIN ST	SUNNY SIDE DR		
	34	U.S.441	NB PED FLASHER		
	35	U.S.441	SB PED FLASHER		
	36	PERKINS ST	HERNDON ST		
	37	HIGH ST	MOSS ST		
	38	MOSS ST	VINE ST		
	39	LEE ST	LINE ST		
	40	LEE ST	HERNDON ST		
	41	13TH ST	HIGH ST		
	42	9TH ST	MAGNOLIA ST		
	43	CANAL ST	MAGNOLIA ST		
	44	NB LAKE ST	CITRALI O.J.		
	45	SB LAKE ST	CITRALI O.J.		
	46	AIRPORT BV	FLASHING STOP #1		
	47	AIRPORT BV	FLASHING STOP #2		
	48	AIRPORT BV	FLASHING STOP #3		
	49	AIRPORT BV	FLASHING STOP #4		
		LEESBURG	SCHOOL FLASHERS		
	50	EB GRIFFIN RD	BEVERLY SHORES ELEMENTARY		
	51	WB GRIFFIN RD	BEVERLY SHORES ELEMENTARY		
	52	EB GRIFFIN RD	CARVER MIDDLE		
	53	WB GRIFFIN RD	CARVER MIDDLE		
	54	NB BEECHER ST	CARVER MIDDLE		
	55	SB BEECHER ST	CARVER MIDDLE		
	56	EB S.R.44 (DIXIE)	DABNEY ELEMENTARY		
	57	WB S.R.44 (DIXIE)	DABNEY ELEMENTARY		
	i i				

29	MAIN ST	9TH ST
30	MAIN ST	12TH ST
31	W MAIN ST	THOMAS AV

58	EB MAIN ST	DABNEY ELEMENTARY
59	WB MAIN ST	DABNEY ELEMENTARY
60	EB MOSS ST	SKEEN ELEMENTARY
61	WB MOSS ST	SKEEN ELEMENTARY
62	EB VINE ST	SKEEN ELEMENTARY
63	WB VINE ST	SKEEN ELEMENTARY
64	NB MOSS ST	SKEEN ELEMENTARY
65	SB MOSS ST	SKEEN ELEMENTARY
66	EB S.R.44 (SOUTH ST)	OAK PARK MIDDLE
67	WB S.R.44 (SOUTH ST)	OAK PARK MIDDLE
68	NB C.R.468	RIMES ELEMENTARY
69	SB C.R.468	RIMES ELEMENTARY
70	NB LEE ST	LAKE MONTESSORI SCHOOL
71	SB LEE ST	LAKE MONTESSORI SCHOOL
72	NB 13TH ST	FIRST BAPTIST CHURCH SCHOOL
73	SB 13TH ST	FIRST BAPTIST CHURCH SCHOOL
74	NB SUNSHINE AV	ST PAULS CHURCH SCHOOL
75	SB SUNSHINE AV	ST PAULS CHURCH SCHOOL

	LADY LAKE Signal Agreement					
1	U.S.27 GRIFFIN VIEW DR					
2	U.S.27	C.R.466 / LEMON ST				
3	U.S.27	GRIFFIN AV / AVENIDA CENTRAL				
4	U.S.27	MAIN ST				
5	U.S.27	WALES PLAZA / AVENIDA CENTRAL				
6	AVENIDA AV	PAIGE AV				

CLERMONT Signal Agreement				
1	S.R.50	U.S.27 RAMPS		
2	S.R.50	BLOXHAM AV		
3	S.R.50	EAST AV		
4	S.R.50	FIRE STATION # 1		
5	S.R.50	5th. ST		
6	S.R.50	8th. ST		
7	S.R.50	C.R.561 / 12th ST		
8	S.R.50	GRAND HWY		
9	U.S.27	HOOKS ST		
	E	BEACONS AND FLASHERS		
10	NB U.S.27	HOOKS ST Signal Ahead Flasher		
11	SB U.S.27	HOOKS ST Signal Ahead Flasher		
SCHOOL FLASHERS				
12	NB EAST A	V CYPRESS RIDGE ELEMENTARY		
13	SB EAST A	V CYPRESS RIDGE ELEMENTARY		

UMATILLA	Signal Agreement
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	EUSTIS	Signal Agreement
1	ARDICE AV	PUBLIX WALKWAY
2	KURT ST	ARDICE A ./ MT.HOMER RD
3	S.R.19	C.R.452
4	S.R.19	U.S.441 RAMPS
5	S.R.19	LAKE HILLS PLAZA
6	S.R.19	ARDICE AV / OLD MT. DORA RD
7	S.R.19	LAKEVIEW AV
8	S.R.19 (BAY ST.	CLIFFORD AV
9	S.R.19 (BAYST)	S.R.44 / ORANGE AV
10	S.R.19 (BAYST)	LAKESHORE DR / CITRUS AV
11	S.R.19 (GROVE)	S.R.44 / ORANGE AV
12	U.S.441	KURT ST
13 U.S.441		C.R.19A / Eustis Plaza
	SCHO	OOL FLASHERS
14	EB ORANGE AV	EUSTIS ELEMENTARY
15	WB ORANGE AV	EUSTIS ELEMENTARY
16	NB KURT ST	EUSTIS HEIGHTS ELEMENTARY
17	SB KURT ST	EUSTIS HEIGHTS ELEMENTARY
18	KURT ST / SOUTH ST	EUSTIS HEIGHTS ELEMENTARY
19	KURT ST / MORIN ST	EUSTIS HEIGHTS ELEMENTARY
20	NB S.R.19 (BAY ST)	EUSTIS HEIGHTS ELEMENTARY
21	SB S.R.19 (BAY ST)	EUSTIS HEIGHTS ELEMENTARY
22	EB ORANGE AV	EUSTIS HIGH
23	WB ORANGE AV	EUSTIS HIGH
24	EB BATES ST	CURTWRIGHT CAMPUS

# **SECTION 5 – ATTACHMENTS**

1 S.R.19 C.R.450 / BULLDOG LN 25 WB BATES ST CURTWRIGHT CAMPUS

	LAKE COUNTY Traffic Signals					
1	C.R.25 GRIFFIN AV BEACONS, FLASHERS, NAVIGATION SIGNAL					
2	C.R.25A	C.R.466A (MILLER)	54	RADIO RD.	JACKSON ST. Flasher	
3	C.R.33	C.R.48 / C.R.470	55	Old 441	LAKESHORE BV. Flasher	
4	THOMAS AV	GRIFFIN RD	56	C.R.33	C.R.48	
5	C.R.44	C.R.452	57	EB C.R.42	DEERHAVEN Flasher	
6	C.R.44	C.R.473	58	WB C.R.42	DEERHAVEN Flasher	
7	C.R.468	C.R.44C	59	C.R.44A	C.R.439	
8	OLD 441	BAY RD	60	EB C.R.44A	C.R.439 Flasher	
9	RADIO RD	SHADEMOOR DR	61	WB C.R.44A	C.R.439 Flasher	
10	C.R.19A	DAVID WALKER DR	62	C.R.44	HAINES CREEK BRIDGE (NAVIGATION)	
11	C.R.561	C.R.448	63	C.R.455	PARK LANE	
12	S.R.19	C.R.44 Bypass	64	SB C.R.561	S-CURVE FLASHER	
13	S.R.19	C.R.48	65	NB C.R.561	S-CURVE FLASHER	
14	S.R.19	LANE PARK RD / LANE PARK CUTOFF	66	S.R.19	CENTRAL AV	
15	S.R.19	WOODLEA RD	67	S.R.19	C.R.42	
16	S.R.44	C.R.437	68	EB S.R.40	ASTOR Speed Flasher	
17	S.R.44	C.R.44 Bypass	69	WB S.R.40	ASTOR Speed Flasher	
18	S.R.44	C.R.44B	70	S.R.44	C.R.42	
19	S.R.46	C.R.46A	71	U.S.27	EAGLESNEST RD.	
20	S.R.46	C.R.435	72	U.S.27	HAWTHORNE BV.	
21	S.R.46	C.R.437 NORTH		SCH	IOOL FLASHERS	
22	S.R.46	C.R.437 SOUTH	73	NB HANCOCK RD	WINDY HILL MIDDLE	
23	S.R.50	C.R.455	74	SB HANCOCK RD	WINDY HILL MIDDLE	
24	S.R.50	GREATER HILLS BV	75	EB ROLLING ACRES RD	VILLAGES ELEMENTARY	
25	S.R.50	HANCOCK RD	76	WB ROLLING ACRES RD	VILLAGES ELEMENTARY	
26	S.R.50	CITRUS TOWER BV	77	NB ROUND LAKE RD	ROUND LAKE ELEMENTARY	
27	U.S.27	ROLLING ACRES RD	78	SB ROUND LAKE RD	ROUND LAKE ELEMENTARY	
28	U.S.27	WATER OAKS BV	79	EB TREADWAY RD	TREADWAY ELEMENTARY	
29	U.S.27	C.R.25A (North DIXIE)	80	WB TREADWAY RD	TREADWAY ELEMENTARY	
30	U.S.27	C.R.33	81	EB C.R.42	SPRING CREEK ELEMENTARY	
31	U.S.27	C.R.48	82	WB C.R.42	SPRING CREEK ELEMENTARY	
32	U.S.27	PLANTATIONS BV	83	NB C.R.44	EUSTIS MIDDLE	
33	U.S.27	TURNPIKE / S.R.19	84	SB C.R.44	EUSTIS MIDDLE	
34	U.S.27	C.R.561 NORTH	85	NB C.R.473	TREADWAY ELEMENTARY	
35	U.S.27	C.R.561 South / LAKE MINNEOLA SHORES	86	SB C.R.473	TREADWAY ELEMENTARY	
36	U.S.27	OLD 50 / WASHINGTON ST	87	NB C.R.561	PINE RIDGE ELEMENTARY	
37	U.S.27	CITRUS TOWER BV	88	SB C.R.561	PINE RIDGE ELEMENTARY	
38	U.S.27	HARTWOOD MARSH RD	89	NB SR19 (ALTOONA)	LIFESTREAM	
39	U.S.27	C.R.474	90	SB SR19 (ALTOONA)	LIFESTREAM	
40	U.S.27	WOODCREST WY		NEW SIG	GNALS Coming soon	
41	U.S.441	C.R.44	1	C.R.44	C.R.44A	
42	U.S.441	COLLEGE DR	2	CITRUS TOWER BV	JOHNS LAKE RD	
43	U.S.441	RADIO RD	3	U.S.27	JOHNS LAKE RD	

# **SECTION 5 – ATTACHMENTS**

44	U.S.441	LAKE SQUARE MALL	4	U.S.27	CAGAN CROSSINGS BV
45	U.S.441	LAKES BV	5	U.S.27	MONARCH BV
46	U.S.441	C.R.473	6	U.S.27	WESTON HILLS
47	U.S.441	HUFFSTETLER DR	7	S.R.50	OAKLEY SEAVER RD
48	U.S.441	DAVID WALKER DR	8	C.R.466	ROLLING ACRES RD
49	U.S.441	MORNINGSIDE DR	9	C.R.561	C.R.48
50	U.S.441	E.CROOKED LK. DR	10	S.R.44	LONE OAK RD
51	U.S.441	COUNTRY CLUB BV	11	U.S.441	LINCOLN AV
52	U.S.441	WOLFBRANCH RD	12	S.R.19	C.R.450 EAST
53	U.S.192	TOWN CENTER BV	13	HANCOCK RD	HOOKS ST
			14	HANCOCK RD	JOHNS LAKE RD
			15	S.R.50	C.R.565A
			16	C.R.44A	ESTES
			17	S.R.19	C.R.448
			18	C.R.474	SUNRISE

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		L	EESBURG	Signal	Agreement
1	U.S.27	DR. MARTIN LUTHER KING JR.			
2	U.S.27	PICCIOLA RD		32	S.R.44
3	U.S.27	NORTH LAKE PLAZA - K-MART		33	MAIN ST
4	U.S.27	GRIFFIN RD		34	U.S.441
5	U.S.27	PALM PLAZA		35	U.S.441
6	U.S.27	HILL ST		36	PERKINS
7	U.S.27	CITIZENS BV		37	HIGH ST
8	U.S.27	CENTER ST		38	MOSS ST
9	U.S.27	MAIN ST		39	LEE ST
10	U.S.27	MEADOWS AV (High School)		40	LEE ST
11	U.S.27	SUMTER ST		41	13TH ST
12	U.S.27	S.R.44 (DIXIE AV)		42	9TH ST
13	U.S.27	GUNSTON ST		43	CANAL ST
14	U.S.441	CITIZENS BV		44	NB LAKE S
15	U.S.441	PERKINS ST		45	SB LAKE S
16	U.S.441	LEE ST		46	AIRPORT
17	U.S.441	3RD ST		47	AIRPORT
18	U.S.441	CANAL ST		48	AIRPORT
19	U.S.441	S.R.44 (Dixie AV) / NEWELL HILL RD		49	AIRPORT
20	S.R.44	MAIN ST			
21	S.R.44	LAKE ST		50	EB GRIFF
22	S.R.44	CANAL ST		51	WB GRIFF
23	S.R.44	9TH ST		52	EB GRIFF
24	S.R.44	12Th ST		53	WB GRIFF
25	S.R.44	C.R.468		54	NB BEECH
26	MAIN ST	CANAL ST	1 [	55	SB BEECH
27	MAIN ST	3RD ST	<b>1</b>	56	EB S.R.44
28	MAIN ST	6TH ST	<b>1</b>	57	WB S.R.44
29	MAIN ST	9TH ST	1	58	EB MAIN S
		1			

	BEACONS AND FLASHERS					
32	S.R.44	LAKE PORT SQUARE				
33	MAIN ST	SUNNY SIDE DR				
34	U.S.441	NB PED FLASHER				
35	U.S.441	SB PED FLASHER				
36	PERKINS ST	HERNDON ST				
37	HIGH ST	MOSS ST				
38	MOSS ST	VINE ST				
39	LEE ST	LINE ST				
40	LEE ST	HERNDON ST				
41	13TH ST	HIGH ST				
42	9TH ST	MAGNOLIA ST				
43	CANAL ST	MAGNOLIA ST				
44	NB LAKE ST	CITRALI O.J.				
45	SB LAKE ST	CITRALI O.J.				
46	AIRPORT BV	FLASHING STOP #1				
47	AIRPORT BV	FLASHING STOP #2				
48	AIRPORT BV	FLASHING STOP #3				
49	AIRPORT BV	FLASHING STOP #4				
	LEESBURG	S SCHOOL FLASHERS				
50	EB GRIFFIN RD	BEVERLY SHORES ELEMENTARY				
51	WB GRIFFIN RD	BEVERLY SHORES ELEMENTARY				
52	EB GRIFFIN RD	CARVER MIDDLE				
53	WB GRIFFIN RD	CARVER MIDDLE				
54	NB BEECHER ST	CARVER MIDDLE				
55	SB BEECHER ST	CARVER MIDDLE				
56	EB S.R.44 (DIXIE)	DABNEY ELEMENTARY				
57	WB S.R.44 (DIXIE)	DABNEY ELEMENTARY				
58	EB MAIN ST	DABNEY ELEMENTARY				

30	MAIN ST	12TH ST
31	W MAIN ST	THOMAS AV

59	WB MAIN ST	DABNEY ELEMENTARY
60	EB MOSS ST	SKEEN ELEMENTARY
61	WB MOSS ST	SKEEN ELEMENTARY
62	EB VINE ST	SKEEN ELEMENTARY
63	WB VINE ST	SKEEN ELEMENTARY
64	NB MOSS ST	SKEEN ELEMENTARY
65	SB MOSS ST	SKEEN ELEMENTARY
66	EB S.R.44 (SOUTH ST)	OAK PARK MIDDLE
67	WB S.R.44 (SOUTH ST)	OAK PARK MIDDLE
68	NB C.R.468	RIMES ELEMENTARY
69	SB C.R.468	RIMES ELEMENTARY
70	NB LEE ST	LAKE MONTESSORI SCHOOL
71	SB LEE ST	LAKE MONTESSORI SCHOOL
72	NB 13TH ST	FIRST BAPTIST CHURCH SCHOOL
73	SB 13TH ST	FIRST BAPTIST CHURCH SCHOOL
74	NB SUNSHINE AV	ST PAULS CHURCH SCHOOL
75	SB SUNSHINE AV	ST PAULS CHURCH SCHOOL

LADY LAKE Signal Agreement		
1	U.S.27	GRIFFIN VIEW DR
2	U.S.27	C.R.466 / LEMON ST
3	U.S.27	GRIFFIN AV / AVENIDA CENTRAL
4	U.S.27	MAIN ST
5	U.S.27	WALES PLAZA / AVENIDA CENTRAL
6	AVENIDA AV	PAIGE AV

CLERMONT Signal Agreement			
1	S.R.50	U.S.27 RAMPS	
2	S.R.50	BL	OXHAM AV
3	S.R.50	EAST AV	
4	S.R.50	FIRE STATION # 1	
5	S.R.50	5th. ST	
6	S.R.50	8th. ST	
7	S.R.50	C.R.561 / 12th ST	
8	S.R.50	GRAND HWY	
9	U.S.27	HOOKS ST	
BEACONS AND FLASHERS			
10	NB U.S.27		HOOKS ST Signal Ahead Flasher
11	SB U.S.27		HOOKS ST Signal Ahead Flasher
SCHOOL FLASHERS			
12	NB EAST AV		CYPRESS RIDGE ELEMENTARY
13	SB EAST AV CYPRESS RIDGE ELEMENTARY		

UMATILLA Signal Agreement		
1	S.R.19	C.R.450 / BULLDOG LN

EUSTIS Signal Agreement					
1	ARDICE AV	PUBLIX WALKWAY			
2	KURT ST	ARDICE A ./ MT.HOMER RD			
3	S.R.19	C.R.452			
4	S.R.19	U.S.441 RAMPS			
5	S.R.19	LAKE HILLS PLAZA			
6	S.R.19	ARDICE AV / OLD MT. DORA RD			
7	S.R.19	LAKEVIEW AV			
8	S.R.19 (BAY ST.	CLIFFORD AV			
9	S.R.19 (BAY ST)	S.R.44 / ORANGE AV			
10	S.R.19 (BAY ST)	LAKESHORE DR / CITRUS AV			
11	S.R.19 (GROVE)	S.R.44 / ORANGE AV			
12	U.S.441	KURT ST			
13	U.S.441	C.R.19A / Eustis Plaza			
SCHOOL FLASHERS					
14	EB ORANGE AV	EUSTIS ELEMENTARY			
15	WB ORANGE AV	EUSTIS ELEMENTARY			
16	NB KURT ST	EUSTIS HEIGHTS ELEMENTARY			
17	SB KURT ST	EUSTIS HEIGHTS ELEMENTARY			
18	KURT ST / SOUTH ST	EUSTIS HEIGHTS ELEMENTARY			
19	KURT ST / MORIN ST	EUSTIS HEIGHTS ELEMENTARY			
20	NB S.R.19 (BAY ST)	EUSTIS HEIGHTS ELEMENTARY			
21	SB S.R.19 (BAY ST)	EUSTIS HEIGHTS ELEMENTARY			
22	EB ORANGE AV	EUSTIS HIGH			
23	WB ORANGE AV	EUSTIS HIGH			
24	EB BATES ST	CURTWRIGHT CAMPUS			
25	WB BATES ST	CURTWRIGHT CAMPUS			

# **EXHIBIT B**

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# TECHNICAL SPECIAL PROVISIONS for SYSTEM COMMUNICATIONS (FIBER OPTIC CABLE)

#### **SECTION 630 - CONDUIT**

#### 630.1 Fiber Optic Conduit

Conduit shall meet the applicable requirements of Section 630 of the FDOT Standard Specifications for Road and Bridge Construction, dated 2000, as amended and shall be in accordance with these Technical Special Provisions.

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The underground conduit shall prevent the ingress of water, dirt, sand, and other foreign materials prior to, during and after construction. An AWG #14 locate wire shall be run with the fiber cable in the conduit when installed underground. The locate wire shall not be run into the cabinet. It shall be run to the nearest pull box.

To minimize cable tension during installation the conduit fill ratio (outer cable diameter to inner conduit/duct diameter) should not exceed 50%. The minimum inner diameter (ID) of the conduit shall be 1 1/4 inches and include all required fittings and incidentals necessary to construct a complete installation. The conduit system shall allow the fiber optic cable to maintain the minimum bend radius after installation.

Above ground conduit shall use a foam-sealing material, rubber plug, or other device, designed for this type of application and approved by the FDOT, at the top of the conduit riser to exclude water and debris from the conduit riser assembly.

#### 630.2 METHOD OF MEASUREMENT AND PAYMENT

Method of Measurement and Payment shall be made at the contract unit bid price in accordance with Section 630-4 and 630-5 of the FDOT Standard Specifications for Road and Bridge Construction, dated 2000 as amended. Conduit underground, underpayement, and jacked shall include the cost for furnishing and installing the locate wire.

# 633 SYSTEM COMMUNICATIONS (Fiber Optic Cable)

# **633.1** SCOPE

This Technical Special Provision covers the work of furnishing and installing fiber optic cable, connectors, splices, terminations, pigtails, jumpers, splice enclosures and OTDR testing. This Technical Special Provision shall include multi-mode, single-mode and hybrid fiber optic cable as applicable. The fiber optic trunk line shall be 24 single-mode and 12 multi-mode. The drop cable shall be 12 multi-mode.

#### 633.2 GENERAL

Each fiber optic cable shall be dielectric, dry blocked, duct type, loose tube, and contain multi mode dual-window (850 nm and 1300 nm) fibers and/or a single mode dual-window (1310 nm and 1550 nm) fibers in accordance with the Plan and shall conform to these Technical Special Provisions.

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All fiber optic cable shall be new, unused, and of current design and manufacture. All fibers shall be sufficiently free of surface imperfections and inclusions to meet the optical, mechanical and environmental requirements of this specification. All cable(s) provided, shall be of a common design and all optical fibers shall be manufactured by the same fiber optic manufacturer.

The fiber optic cable design shall be an accepted product of the United States Department of Agriculture Rural Utilities Service (RUS) 1755.900, RUS specification for filled fiber optic cables @ http://www.usda.gov/rus/telephone/regs/1755.htm. The construction and testing of the fiber optic cable shall comply with all applicable Electronic Industry Standards (EIA/TIA), International Telegraph and Telephone Consultative Committee (CCITT) standards, ASTM standards, FDDI specifications and the ANSI/ICEA Standard for Fiber Optic Outside Plant Communications Cable (ANSI/ICEA S-87-640-1992) or Telcordia Technologies Generic Requirements for Optical Fiber and Fiber Optic Cable, GR-20-CORE.

# 633.3 FIBER OPTICAL REQUIREMENTS

The required fiber grade shall reflect the maximum individual fiber attenuation, to guarantee the required performance of each and every fiber in the cable. For all fibers, the attenuation specification shall be a maximum attenuation for each fiber over the entire operating temperature range of the cable.

The cable shall comply with the optical and mechanical requirements over an operating temperature range of  $-40^{\circ}$ C to  $+70^{\circ}$ C. The fiber optic cable shall not exhibit a maximum mean attenuation change of greater than 0.00003 dB/km for single-mode fibers and 0.00009 dB/km for multi-mode when subjected to the freezing test of EIA/TIA-455-98A.

<u>Parameter</u>	Multi Mode Fiber	Single Mode Fiber
Core Diameter (nominal)	62.5+/-10 μm	8.3 μm
Mode Fill Diameter: @ 1310 SM @ 1550 SM	N/A N/A	8.80μm to 9.80μm 9.50μm to 11.50μm
Cladding Diameter	125 μm +/-2.0 μm	125.0 μm+/- 1.0 μm
Core to Cladding Offset	$\leq$ 3.0 $\mu m$	$\leq 0.5 \ \mu m$
Coating Diameter for Trunk Cables	$245~\mu m$ +/-10 $\mu m$	245 μm +/-10 μm
Cladding Non-circularity defined as: (1-Min Cladding Diameter/ Max Cladding Diameter) x 100	<2.0%	<1.0%
Proof/Tensile Test	0.7 GN/m2, min.	0.7 GN/m2, min
Attenuation: @ 850 nm MM @ 1310 nm SM @ 1300 nm MM @ 1550 nm SM	0.0011 dB/ft 0.0003 dB/ft	0.0012 dB/ft 0.000092 dB/ft
Attenuation at Water Peak (@ 1380)	0.00061 dB/ft	0.00064 dB/ft
Туре	Graded Index	Step Index
Chromatic Dispersion: Zero Dispersion Wavelength Zero Dispersion Slope	1332 to 1354 nm 0.097 ps/(nm2 x km)	1301.5 to 1321.5nm 0.092 ps/(nm2 x km)
Cut-Off Wavelength	N/A	1260 n

# 633.4 CABLE REQUIREMENTS

#### **633.4.1 GENERAL**

Each optical fiber shall be glass and consist of a doped silica core surrounded by concentric silica cladding. The cladding shall have a different Index of Refraction to direct and contain the light energy within the fiber as specified herein.

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All fibers in the buffer tube shall be usable fibers which meet attenuation requirements and shall be sufficiently free of surface imperfections and inclusions to meet the optical, mechanical, and environmental requirements of these specifications.

The fiber optic trunk cable shall be dielectric and heavy duty with a cable diameter not exceeding ½ inch.

The core and the cladding of the glass fibers shall be coated with one or more additional layers of buffering materials or coating to protect the core and cladding, and increase the fiber strength. The cable core shall be designed such that fiber strain does not exceed the limit allowed by the cable manufacturer under the operational design limits of the cable. Maximum allowable fiber strain will generally be a function of the proof test level, and strength and fatigue parameters of the coated glass fiber.

The coating shall be designed to protect the fiber during manufacture, handling, and use. It shall be mechanically or chemically strippable without damaging the fibers and buffer tubes.

#### 633.4.2 Buffer Tubes

The glass fibers shall be placed inside loose buffer tubes with each buffer tube containing up to six (6) fibers. The tubes shall be extruded from a material having a coefficient of friction sufficiently low to allow free movement of the fibers. Buffer tubes shall be kink resistant within the specified minimum bend radius. Enough clearance shall be provided in the loose buffer tubes to allow for expansion and contraction due to temperature changes.

The loose buffer tubes shall be positioned around a strength member. Buffer tubes shall be stranded around the central strength member by a method that prevents stress on the fibers when the cable jacket is placed under strain, such as reverse oscillation ("S-Z") stranding process. Buffer tubes shall be held in place with a Kevlar or approved equivalent binding without crushing the buffer tubes. The binding material shall be non-hygroscopic, non-wicking, and dielectric with low shrinkage.

Buffer material shall not cause damage to the fibers by chemical migration or bonding during operations and storage at high temperature. Further more, the buffer tube material shall not become brittle or non-flexible at cold temperatures.

Fillers shall be included in the cable to lend symmetry to the cable cross-section where needed. Filler rods shall be solid medium or high-density polyethylene. The diameter of filler rods shall be the same as the outer diameter of the buffer tubes.

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# 633.4.3 Central Strength Member

The central strength member shall be non-metallic (all dielectric). The central strength member shall provide the necessary tensile strength to limit axial stress on the fibers and minimize fiber buckling due to cable contraction or expansion. It shall consist of a high tensile strength material, such as Kevlar (or approved equivalent) with similar expansion and contraction characteristics as the optical fibers and buffer tubes. A linear overcoat of low density polyethylene shall be applied to the central member to achieve the optimum diameter to provide the proper spacing between buffer tubes during stranding.

# 633.4.4 Water Blocking Compound

The fiber optic cable shall be constructed to prevent intrusion / ingress and migration of water along the fiber optic cable core. The fiber optic cable shall contain a dry water-blocking material. All water blocking materials/compounds shall be compatible with all components with which it may come in contact.

Water-blocking material (i.e., tape and yarn) shall be applied longitudinally around the outside of the stranded buffer tubes and around the cable core. The water -blocking material shall be non-nutritive to fungus, electrically non-conductive, and homogenous. It shall also be free from dirt and foreign matter.

#### 633.4.5 Cable Jacket

The outer jacket shall be designed to house and protect the inner elements of the cable from damage due to moisture, sunlight, and environmental, thermal, mechanical, and electrical stresses. The outer jacket material shall be applied directly over the tensile strength member and water blocking material.

The outer cable jacket shall consist of medium density cross-linked polyethylene (MDPE), which is free of holes, splits, blisters and other deformities and containing no metal elements.

The polyethylene (PE) jacket material shall contain a suitable anti-oxidant, and shall not promote the growth of fungus. The polyethylene shall contain carbon black to provide ultraviolet light protection. The MDPE jacket material shall be as defined by ASTM D1248-98, Type II, Class C, Category 4. The polyethylene shall contain carbon black conforming to ASTM-D 1765-99a, N-110 requirements. The minimum light absorption coefficient of the jacket shall be at least 400, when measured at a wavelength of 375 nm per ASTM-D 3349-99.

# 633.4.6 Rip Cord

The fiber optic cable shall contain at least one ripcord under the PE sheath for easy sheath removal and cable dressing of all dielectric cable.

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# 633.4.7 Color Coding

Each fiber strand and each buffer tube shall be distinguishable from others by means of color-coding in accordance with the following:

# **Buffer Tubes Containing Multiple Fibers**

Fiber	1	Blue (Bl)
Fiber	2	Orange (O)
Fiber	3	Green (G)
Fiber	4	Brown (Br)
Fiber	5	Slate (S)
Fiber	6	White (W)

# **Cables Containing Multiple Buffer Tubes**

Buffer Tube (Fiber Assembly)	-1-	Blue (Bl)
<b>Buffer Tube (Fiber Assembly)</b>	-2-	Orange (O)
<b>Buffer Tube (Fiber Assembly)</b>	-3-	Green (G)
<b>Buffer Tube (Fiber Assembly)</b>	-4-	Brown (Br)
<b>Buffer Tube (Fiber Assembly)</b>	-5-	Slate (S)
Buffer Tube (Fiber Assembly)		-6- White (W)

These colors shall meet TIA/EIA - 598-A "Optical Fiber Cable Color Coding".

# **633.4.8** Labeling

Outer cable jackets shall be distinguishable from each other by labeling. The jacket or sheath shall be marked with the manufacturer's name, the words "FDOT Fiber Optic Cable", date of manufacture, type of cable, fiber count, and sequential measurement markings every yard.

The actual length of the cable shall be within 1% of the length marking. The markings shall be in a contrasting color to the cable jacket and legible. All markings shall be permanent and readable over the life expectancy of the cable.

Permanent plastic labels suitable for outside cable plant applications shall be affixed to the cable, using tie wraps, at each utility pole, pull box, junction box, cabinet, etc., indicating FIBER OPTIC CABLE and showing cable origin and destination (i.e. intersection name).

# 633.5 STRENGTH REQUIREMENTS

# 633.5.1 Longitudinal Strength

**Tensile Strength** – All fiber optic cable shall be capable of withstanding a pulling tension of 600 lbs. for one hour during installation without increasing the maximum mean attenuation change of more than 0.00003 dB/ft for single mode fibers and 0.00009 dB/ft multi mode fibers after the removal of the tensile load.

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**Bend Radius** – All fiber optic cable shall be capable of withstanding a minimum-bending radius of ten (10) times the cable diameter under no load (0-180lbs) and twenty (20) times the cable diameter when under a load of (181-600lbs).

# 633.5.2 Lateral Strength

**Compressive Load** – The fiber optic cable shall withstand a minimum compressive load of 125lbs/in applied uniformly over the length of the sample. The maximum mean attenuation change shall not exceed 0.1 dB (just before the load is removed) and no fibers shall display a measurable change in attenuation after load removal.

# 633.5.3 Cable Handling

The fiber optic cable shall withstand 25 mechanical flexing cycles at a rate of 30 cycles per minute around a mandrel and sheave diameter consistent with the minimum cable-bending radius of 20 times the cable diameter. The maximum-mean attenuation change shall not exceed 0.1 dB for single-mode fibers and 0.3 dB for multi-mode fiber. The outer cable jacket shall exhibit no cracking or splitting when observed under 10x magnification.

The cable shall have a twist radius of  $\pm$ 180 degrees times 25 cycles at 20 times the outer diameter, with a minimum proof stress of 500 e<sup>3</sup> lbf/in<sup>2</sup>.

#### 633.6 SHIPPING AND HANDLING

#### **633.6.1** General

All fiber optic cable shall be shipped and packaged for shipment on non-returnable wooden reels with solar-resistant, water -resistant thermal wraps designed to prevent damage to the fiber optic cable during shipment and installation. Each reel shall be marked to indicate the direction the reel should be rolled to prevent loosening of the cable.

Fiber optic cable ends shall be sealed to prevent the ingress of moisture and prevent the escape of water blocking material. Fiber optic cable ends shall be equipped with flexible pulling eyes.

All fiber optic cable and reels shall be designed to be compatible with handling and fiber installation equipment and shall cause no damage to the fiber optic cable during installation. Safety and handling instructions shall be provided by the Contractor.

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## 633.6.2 Marking and Documentation

Each reel shall have a weather resistant reel tag attached identifying the reel and cable. The reel tag shall include, but not limited to the following information:

- X Order Number
- X Job Number
- X Reel Number
- X Manufacturer=s Name
- X Manufacturer product number
- X Cable type
- X Cable length in feet
- X Beginning and end length markings
- X Shipping date
- X Gross weight of cable and reel

A copy of the Certificate of Compliance signed by an officer of the cable manufacturers company shall be supplied with each reel of fiber optic cable shipped. This documentation shall be contained underneath the thermal wrap in a waterproof pouch / envelope along with the cable manufacturer's factory test results, date of manufacture, fiber optic cable type and characteristics, and information showing compliance with the requirements specified herein. This documentation shall be provided for each work order prior to beginning construction.

The security of the on-reel fiber cable shall be maintained at all times. The Contractor shall be responsible for any damage to, theft or loss of the cable.

#### 633.7 FIBER OPTIC CABLE AUXILIARIES

# 633.7.1 Fiber Optic Connectors, Type ST

All fibers in a terminated cable shall be terminated with a fan out kit using ST connectors, prepolished pigtails, or as required by the component connector. All terminations shall provide a minimum 50 lb pull out strength.

All fiber optic connectors shall be 0.09 inch ceramic ferrule ST type for single mode or multi mode applications with Zirconia Ceramic material and a physical contact (PC) polished, pre-radiused tip.

The connector operating temperature shall be  $-18^{\circ}$ C to  $+70^{\circ}$ C ( $0^{\circ}$ F to  $+158^{\circ}$ F) and the connector pair loss shall not exceed 0.75 dB for single-mode fibers and for multi-mode

fibers. All terminated cables, as a minimum, shall meet the following performance requirements:

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Durability -- +/- 0.3 dB change for 500 mating / insertion cycles per FOTP-21

- X Thermal Shock --  $\pm$  0.3 dB change over  $\pm$  40°C to  $\pm$  60°C, 10 cycles
- X Cable Retention -- +/- 0.3 dB change with 89N (20 lb.) load per FOTP-6
- X Humidity -- +/- 0.3 dB change at +60 °C at 95% RH for 504 hours per FOTP-5
- X Flex Test -- +/- 0.3 dB change for 300 cycles, 0.5 kg (1.1 lbs.) per FOTP-1
- X Impact Test -- +/- 0.3 dB change for 8 cycles per FOTP-2
- X Twist Test -- +/- 0.3 dB change for 10 cycles, 1.5 kg (3.3 lbs.) Per FOTP-36

Factory test results shall be documented and submitted to the ENGINEER prior to installing any of the connectors.

# 633.7.2 Fiber Optic Splices

All exposed fiber strands shall be connectorized at each location. No intermediate splices shall be allowed between terminations. The location of all splices shall be determined by the contractor and approved by the Department.

All splices shall use the fusion technique; mechanical splices shall not be permitted. The Contractor is responsible to insure the maximum loss of 0.10 dB for multimode and for single mode. Where splices exceed this loss budget, the cable shall be re-spliced or replaced by the Contractor at the Contractor's expense.

In the event that the fiber optic cable manufacturer recommends more stringent splicing procedures than the requirements specified herein, the Contractor shall follow the more stringent cable manufacturer recommendations and procedures upon approval by the Engineer.

All splicing equipment used by the contractor shall be cleaned and calibrated according to the manufacturer's instruction prior to each splicing session at each location.

All splices shall be placed in splice trays and each spliced fiber shall be packaged in a protective sleeving or housing. Bare fibers shall be completely re-coated with a protective coating prior to application of the sleeve or housing to protect the fiber from scoring, dirt, or micro-bending. Splicing at each termination point shall consist of splicing factory pre-connectorized pigtails to the fiber optic cable as indicated in the plans.

# 633.7.3 Splice Trays

Completed splices shall be placed in an organizer and coated with a silicone based Room Temperature Vulcanizing (RTV) sealant, such as Dow Corning 734 or approved equivalent to protect the fibers from mechanical shock, dust, dirt and moisture. The individual fibers shall be looped one full turn within the splice tray to avoid micro bending. A minimum bend radius of 20 times the cable diameter shall be maintained during installation and 10 times the cable diameter after final assembly in the optical fiber splice tray. Buffer tubes and bare optical fibers in any enclosures shall be placed in any enclosure such that there is no discernible tensile force placed upon them.

# 633.7.4 Buried Splice Enclosure

The splice enclosure shall be designed to be easily accessible for testing and maintenance with the necessary vehicles and equipment to perform the task. The splice enclosure shall be capable of accommodating splice organizers and accept up to a minimum of 36 fusion splices and accommodate a minimum of two (2) cable entries at each end allowing for pass through fibers.

This enclosure shall also be designed for aerial splices, equipped with a minimum of 2 sealable drop ports and provide ultraviolet light protection.

The enclosure shall be moisture-tight (non-filled/ no encapsulate), fungus resistant (ASTM

21), re-enterable for system expansion and repair, provide cable storage support, place no stress on finished splices within the trays, provide cable strain-relief, allow for individual splice tray access, and require only ordinary tools and no chemicals for installation. The enclosure end caps shall be factory-drilled to the proper diameter to accept and seal the fiber optic cable entries without jeopardizing its waterproof characteristics. The enclosure and all cable entries shall utilize a water-blocking technique that permits total immersion in water for a period of seven (7) days without compromise. Water penetration within the compartment containing the splices constitutes a failure and replacement of the enclosure will be at the CONTRACTOR's expense.

# **633.7.5 Pig Tails**

Pigtails shall consist of jacketed, single fiber cable with one end available for splicing to the fiber optic cable and the other end equipped with a preconnectorized ST compatible connector. Jumpers can be split to create two pig tail terminations. A 50 mm minimum bend radius shall be maintained during installation and after final assembly in the optical fiber splice tray. Each bare fiber shall be individually restrained in a splice tray. The optical fibers in buffer tubes and the placement of the bare optical fibers in the splice tray shall be such that there is no discernable tensile force on the optical fiber.

All connectors provided shall as a minimum meet the performance requirements indicated

in Subsection 633.7.1 Fiber Optic Connectors. Factory testing of all pigtails shall be completed prior to being shipped to the Contractor's project site. A copy of a Certificate of compliance signed by an

officer of the manufacturer's company shall be provided with all pigtails shipped showing compliance with the factory requirements as well as the requirements of this document.

# 633.7.6 Fiber Optic Enclosures

Buffer tubes and bare optical fibers in any enclosures shall be placed such that there is no discernible tensile force placed upon them. The top, back, or sides shall be removable, or contain openings for cable entrance. The enclosure shall integrate into one unit the connector panel(s) and the splice tray(s).

# **633.7.7 Jumpers**

Jumpers shall be provided for all connections and cross connections according to the plans.-Jumpers shall be furnished by the contractor that are pre-connectorized by the factory with ST- compatible connectors at a length of four (4) feet. Each jumper shall contain a single fiber with a ST-compatible connector at each fiber end. All jumpers shall, as a minimum, meet the requirements indicated in Section 633.7.1 Fiber Optic Connectors

All connectors provided shall as a minimum meet the performance requirements indicated

in Subsection 633.7.1 Fiber Optic Connectors. Factory testing of all jumpers shall be completed prior to being shipped to the Contractor's project site. A copy of a Certificate of compliance signed by an officer of the manufacturer's company shall be provided with all jumpers shipped showing compliance with the requirements specified herein.

## 633.7.8 Fiber Transceiver

When required the Contractor shall be responsible for supplying a fiber transceiver capable of converting the optical signal to an electrical signal that will communicate with the existing traffic signal controller. It shall also insure any other miscellaneous material necessary to insure a fully operational closed loop fiber optic system in accordance with these Technical Special Provisions.

#### 633.8 INSTALLATION

#### 633.8.1 Installation

The fiber optic cable shall be installed in accordance with the cable manufacturer=s latest version of the cable installation procedures and recommendations and the applicable installation standards, codes and practices as specified in these Technical Special Provisions. The installation of the fiber optic cable shall be done carefully such that the optical characteristics and

performance are not degraded in any manner. Single mode fibers are not to be terminated in cabinet to cabinet runs, connections for single mode shall be made from end to end. Multi mode fibers may be spliced in accordance with Subsection 633.7.2 from cabinet to cabinet, however only the buffer tubes that are to be used at a cabinet are to be broken out and then a drop cable shall be run from the fiber enclosure to the cabinet where they will be terminated.

In the event that the cable manufacturer recommends more stringent installation procedures than the requirements specified herein, the Contractor shall follow the more stringent cable manufacturer recommendations and procedures. Before starting any construction, all Contractor personnel (including subs) shall be thoroughly familiar with and shall comply with Occupational Safety and Hazard Act (OSHA) regulations and FDOT safety practices and policies.

The bending radius shall be not less than 20 times the cable diameter under a load of (181 - 600 lbs) and not less than 10 times the cable diameter under no load (0 - 180 lbs). The fiber optic cable installation and bend radius configuration shall not change the optical characteristics of the fiber.

All equipment and hardware that will contact the cable during installation shall maintain the minimum bend radius of the fiber optic cable and shall be approved by the cable manufacturer for this application. Radius-maintaining devices/hardware shall be used when necessary to maintain the minimum bend radius. Conduit into pull boxes shall be angled such that the minimum bend radius of the cable is maintained.

The contractor shall take precautions to protect reeled cable from vandals or other sources of possible damage while unattended. If the cable is laid on any pavement or on the ground during installation, the Contractor shall provide barricades or other means of preventing vehicular or pedestrian traffic in the area. At the completion of a day's installation, the Contractor shall protect bare cable ends by placing a cable cap on the end of the cable, followed by several wraps of tape around each cap.

# 633.8.2 Experience

The personnel involved in the installation shall have the following experience: two installed systems that have met final acceptance in outdoor conduit with satisfactory operation of one year, and experience with installation of fiber optical cables, fusion splicing, terminations, and OTDR testing. In addition, at least one cable system shall be available for demonstration to the ENGINEER or his/her designated representative. The personnel involved in the installation shall submit as proof, supporting documents and name, address and telephone number of the clients that can be contacted regarding the fiber optic system, repair and maintenance effort.

Proof of meeting the above requirements shall be submitted and approved by the ENGINEER prior to performing any installation activities.

# 633.8.3 Underground Fiber Optic Cable Installation

All underground fiber optic cable shall be installed in new or existing conduit; no direct buried fiber will be permitted. The cable pulling operation shall be performed such that the minimum-bending radius of the cable shall not be exceeded in the unreeling and pulling operations. Entry guide shoots shall be used to guide the cable into the conduit ends at pull boxes. Lubricating compound shall be used to minimize the cable to conduit friction. In addition, corner rollers, if used, shall not have radii less than the minimum installation bending radius of the cable. A series array of smaller wheels can be used for accomplishing the bend if the array is specifically approved by the cable manufacturer. The pulling tension shall be continuously measured and shall not be allowed to exceed the maximum tension specified by the cable manufacturer. Fuse links and breaks shall be used to insure the cabling tensile strength is not exceeded. Fuse links shall not exceed 600 lbs pulling tension.

# 633.8.4 Aerial Fiber Optic Cable Installation

All aerial fiber optic cable shall be installed without loose lashing, twisting, or weaving along the messenger/strand. Span Wire installation and lashing shall meet the applicable requirements of Section 634 of the FDOT Standard Specifications, dated 2000 as amended. Upon final field inspection by the FDOT, rippling, kinking, or any kind of deformation of the cable may require replacement of the cable by the CONTRACTOR at the CONTRACTOR'S expense.

Tension on the cable during the lashing operation shall be as low as possible to minimize the margin available for resisting environmental loads.

The CONTRACTOR shall provide a means of protecting the cable from chafing (rubbing against the messenger/strand, messenger clamp, trees, etc.) through drip loops or cable guards.

The CONTRACTOR shall provide a Cable Storage Device (Sno-Shoe) with a minimum of 100 feet of excess cable at every signalized intersection and at all locations where a second fiber is spliced to the main fiber run. The Cable Storage Device (Sno-Shoe) shall be an aerial assembly that is electrically non conductive, and constructed of UV rated material. It shall prevent micro bends in the fiber and be capable of holding a minimum of 150 feet of excess fiber optic cable

A cable extension arm shall be used in areas where the messenger can not be attached directly to the poles. It shall be long enough to maintain a minimum of four (4) foot clearance from the neutral.

Guy Wires and screw anchors shall be used in areas where the fiber pulls in an opposing direction of the existing forces on the pole or as deemed necessary by the Engineer.

# 633.8.5 Cable Splicing Between Cabinets

The CONTRACTOR shall not splice fiber optic cable being used for traffic signal communications between cabinet terminations.

#### **633.8.6** Locate Wire

An AWG #14 locate wire shall be run with the fiber cable in the conduit when installed underground. The locate wire shall not be run into the cabinet. It shall be run to the nearest pull box.

#### 633.9 SPLICING AND TERMINATION SCHEMATICS

The splicing of the fiber optic cable in the controller cabinets shall be performed by the CONTRACTOR in order to make a fully functional communication system. All exposed fiber shall be spliced or terminated.

Prior to the installation of any fiber equipment and within 30 days after the preconstruction conference submit complete fiber optic splicing diagrams to the Engineer for approval.

The Department is not liable for any equipment or material purchased, work done, or delay incurred prior to such approval.

#### 633.10 TESTING PROCEDURES - GENERAL

#### **633.10.1 Procedures**

The CONTRACTOR shall submit a test procedure and data forms for the tests to be performed to the ENGINEER for approval. The test procedure and data forms shall be submitted to the ENGINEER concurrently with the submittal data for the fiber optic cable. In addition, the CONTRACTOR shall provide the results of bi-directional end to end fiber tests within each cable, and a list of the splice losses in tabular form.

#### **633.10.2** Results

The results of the tests shall provide loss figures (including splice losses and calculated losses) for every meter throughout the fiber optic cable length for each fiber and shall be provided to the ENGINEER. The cable loss results shall also be documented in the communications plans, delineating the link and total fiber length loss.

# 633.10.3 Testing Details

Testing shall include the tests on elements of the passive fiber optic components at the factory and after delivery to the project site but prior to installation.

The CONTRACTOR or manufacturer shall provide all personnel, equipment, instrumentation, and materials necessary to perform all testing. The ENGINEER shall be notified 10 working days prior to all field tests.

#### 633.10.4 Documentation

Documentation of all test results shall be provided to the ENGINEER within 2 working days after the test involved.

# 633.10.5 Optical Time Domain Reflectometer (OTDR) Tests

Attenuation testing shall be completed on all fiber optic cable. The correct index of refraction setting shall be programmed based on the cable manufacturer specifications. The CONTRACTOR shall perform a bi-directional end to end O.T.D.R. test at two (2) optical wavelengths using a 125 foot launch cable and 200 foot post cable at a minimum. For Multi mode fiber (62.5/125 um) the wavelengths shall be 850 nm and 1300 nm. For Single mode fiber (10/125) the wavelengths shall be1310 nm and 1550 nm. All fiber strands shall be tested. The O.T.D.R. traces for each strand shall be printed and submitted to the ENGINEER for review. Each O.T.D.R. Trace shall identify the cable buffer/fiber color, it=s origin and destination, and the overall distance. The O.T.D.R. shall be configured to view any anomaly greater than 0.05 dB. Additionally, any fusion splice identified by the O.T.D.R. as being greater than 0.15 dB shall be broken and respliced.

#### **633.10.6 OTDR Printer**

The OTDR shall have a printer capable of producing a verifying test trace with fiber identification, numerical loss values, the date and the operators' name. It shall also have a 3.5 inch disk recording capability that has associated software to do comparisons and reproductions on 8.5 inch x 11 inch paper, via a personal computer.

#### **633.10.7** Test Plans

Prior to arrival of the cable, the CONTRACTOR shall provide detailed test procedures for all pre and post installations. The procedures shall include the test requirements and conduct. These tests plans shall be subject to the approval of the ENGINEER.

# 633.10.8 Factory Test

The factory test shall include verification of the fiber specifications as listed in the Fiber Characteristics Table which shall be supplied by the manufacturer with the appropriate documentation. After cabling, before shipment, but while on the shipping reel, 100 percent of all fibers shall be tested for attenuation. Copies of the results shall be maintained on file with a file identification number, attached to the cable reel in a waterproof pouch, and submitted to the CONTRACTOR and to the ENGINEER prior to the delivery of the cable to the job site.

#### 633.10.9 Cable Installation

A cable pulling plan shall be submitted to the ENGINEER concurrently with the submittal data for the fiber optic cable. The cable shall not be installed until completion of these test sequences and written approval by the ENGINEER. Copies of traces and test results shall be submitted to the ENGINEER. If the OTDR test results are unsatisfactory, the reel of fiber optic cable shall be considered unacceptable and all records corresponding to that reel of cable shall be marked accordingly.

The unsatisfactory reels of cable shall be replaced with new reels of cable at the CONTRACTORS expense. The new reels of cable shall then be tested to demonstrate acceptability. Copies of the test results shall be submitted to the ENGINEER.

#### 633.11 METHOD OF MEASUREMENT AND PAYMENT

The contract unit price per meter for furnishing and installing fiber optic cable, connector splice enclosures at all intermediate cabinet locations, trace wire, patch panels, power meter, OTDR testing, and installation shall include all labor, terminations, fan out kits, equipment, and miscellaneous material necessary for a complete, tested, and accepted installation, in accordance with these Technical Special Provisions or as directed by the ENGINEER.

Payment will be made at the contract unit price bid per meter for the items "Fiber Optic Cable." Payment shall include all equipment described herein and include the locate cable (Underground), connectors, patch panels, enclosures, power meter and OTDR testing, and the cost of furnishing all labor, materials, testing, and equipment necessary to complete the work. This contract unit price includes the splicing/connectorizing of the fiber optic cable strands to provide 100% continuity of all fibers unless otherwise directed by the ENGINEER. All necessary documentation and testing shall be included in the contract unit price.

**2633-123-2** Fiber Optic Cable (Underground, Composite, 26-50) F&I, M1

**2633-132-1** Fiber Optic Cable (Drop, Multimode, 1-25) F&I, M1

#### **SECTION 635 – PULL AND JUNCTION BOXES**

# 635.1 Fiber Optic Pull and Junction Boxes

Pull Boxes/Junction Boxes shall meet the applicable requirements of Section 635 of the FDOT Standard Specifications for Road and Bridge Construction, dated 2000 as amended, and shall be in accordance with these Technical Special Provisions.

All pull boxes and covers shall be FDOT approved of non-metallic construction with recessed covered logo 'FIBER OPTIC'. The type of pull box to be used shall be identified on the plans.

All Pull and Junction Boxes (Fiber Optic) shall be 24" x 36" x 18" with a 6" extension.

All Pull and Junction Boxes (Aerial Junction Boxes) shall be 12" x 12" x 8" and capable of being mounted on buildings or poles, while maintaining the minimum radius of the fiber optic cable.

All Pull and Junction Boxes (Special) shall be as shown in Figure 635-1. The pull box shall

include cable racks. At a minimum, the special pull box shown in Figure 635-1 shall be used at or

near all cabinet locations, as indicated in the plans, where underground conduit is used.

# 635.2 METHOD OF MEASUREMENT AND PAYMENT

Method of Measurement and Payment shall be made at the contract unit bid price in accordance with Section 635-6 and 635-7 of the FDOT Standard Specifications for Road and Bridge Construction, dated 2000 as amended. Payment will be made under:

- 2635-1-12 Pull and Junction Box (Aerial Junction Box) per each.
- 2635-1-15 Pull and Junction Box (Fiber Optic) per each.
- 2635-1-16 Pull and Junction Box (Special) per each.

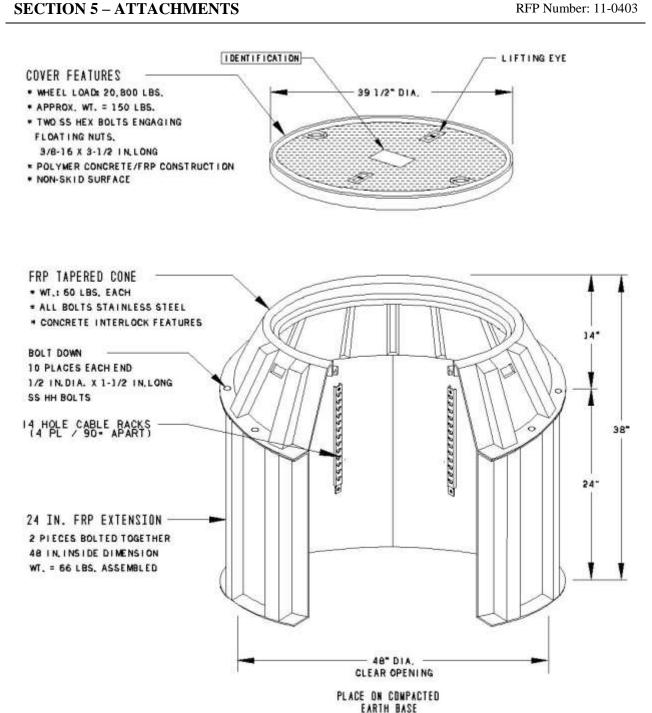


Figure 635-